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PREMATURE SEPARATION OF THE NORMALLY IMPLANTED PLACENTA*

Review of Eighty-Seven Cases

BY A. S. TROUPIN, M.D.†

AMONG the so-called "accidents of pregnancy", antepartum hemorrhage is considered one of the most serious, and in the causation of this, premature separation of the normally implanted placenta ranks second only to placenta praevia. By the phrase as here employed is meant the separation, previous to the expulsion of the fetus, at or near term, of a placenta which had a normal implantation.

Many terms are applied to this condition. Rigby, in 1775, called the condition of premature separation of the normally implanted placenta "Accidental Hemorrhage", in contradistinction to the unavoidable hemorrhage of placenta praevia. Rudolph Holmes, in 1901, suggested the name "Ablatio Placentae." Kolisko, in 1903, designated this condition "Hemorrhagic infarction of the uterus" (infarctus hemorrhagicus uteri). DeLee termed it "Abruptio Placentae." "Utero-placental Apoplexy" is the name given by Couvelaire, in 1911, to a severe form of abruptio placentae which is associated with changes in the uterine wall and in some cases with changes in adjoining structures.

With a view to determining the frequency and gravity of the "accident", the records of 13,864 women, delivered at the Boston City Hospital during the fifteen years between 1917 and 1931, were reviewed and compared with the cases of premature separation reported from other maternity services.

Incidence of Premature Separation — In the period 1917-1931, eighty-seven cases of ablatio placentae were seen at the Boston City Hospital, a ratio of one to every 159 deliveries. Comparing this with reports from other large hospitals, we find the following:

Hospital	Labors	Ablatio Placentae	Ratio
Dublin Rotunda	6,453	70	1:92
Chicago Lying-in Hospital	40,000	164	1:244
New York Lying-in Hospital	100,000	254	1:395
Sloane Maternity Hospital	20,000	212	1:94
Long Island Coll. Hospital	4,878	16	1:305
Jewish Hospital, Brooklyn	16,000	50	1:320
Grady Hospital, Atlanta, Ga.	9,208	61	1:150
Boston Lying-in Hospital	11,907	128	1:93
Boston City Hospital	13,864	87	1:159

*Cases from the Department of Gynaecology and Obstetrics of the Boston City Hospital.

†Deceased August 14, 1932. For record of author, see "This Week's Issue," page 391.

It thus appears that the incidence of premature separation of the normally implanted placenta varies widely in different localities, and in different hospitals in the same locality. Many of these ratios are much higher than the figures compiled by Holmes in 1901, who gave 1:200 as the general average of incidence.

Occurrence in Relation to the Duration of Gestation—The causes of abruptio placentae are evidently more potent as gestation progresses, being most operative at term. More than half of Holmes' patients presented premature separation at term, and he quotes Read as having seen it at the completion of gestation in 33.1 per cent of his cases, and Goodell in 50.5 per cent. Polak says, "Ablatio commonly occurs in the last weeks of pregnancy or during the first stage of labor", but gives no exact figures of his own experience.

GESTATION PERIOD

	Holmes	Willson	Goethals	Troupin
At Term	10	3	51	23
Eight Mos.	2	21	34	20
Seven Mos.	2	10	21	25
Six Mos.	5	5	10	9
Five Mos.			2	
Four Mos.			1	
Unknown			9	10
Total	19	39	128	87

Parity of Patient—Most writers agree that the parity of the patient is an important factor in etiology. In the most complete discussion which has appeared—that given by J. Whitridge Williams[4] before the British Congress of Obstetrics and Gynaecology in London in 1925—forty cases of abruptio placentae, seen in his service at Johns Hopkins University Hospital, were tabulated.

PARITY OF PATIENTS

	Williams	Troupin
Primiparae	12 Cases	18 Cases
Para ii	7 "	7 "
Para iii	6 "	9 "
Para iv	2 "	11 "
Para v	1 "	9 "
Para vi	2 "	5 "
Para vii or more	10 "	28 "
	40 Cases	87 Cases

Of our twenty-eight patients having borne seven or more children, there were six who had

passed through seven pregnancies; five who had passed through eight; eight had been pregnant nine times; two, ten times; one, twelve; one, fourteen; one, fifteen; and four in whom the number of previous pregnancies does not appear in the record. It would appear that if premature separation of the placenta does not occur with the first pregnancy, it is infrequent until a number of children have been borne. From the general remarks of other writers, one gains the impression that the obstetrician should be on the alert for the possible complication of ablatio placentae in women who have borne several children.

ETIOLOGY

DeLee divides the causes into (1) the trauma group; (2) the diseases of endometrium and ovum group; and (3) the toxemia-chronic nephritis group. It is futile to spend much time in considering the possibility of trauma, emotion, etc., as causative factors because the truth was enunciated by Williams when he said, "As yet we are entirely ignorant of the ultimate cause of the accident, and can do little but speculate concerning it." Of his own series of patients he says, "There is nothing in our material to support the traumatic origin of premature separation", and later on he remarks, "The observation that the umbilical cord was not unusually short in any of our cases, renders it unlikely that detachment of the placenta often results from excessive traction." In general, it may be said that although tradition seems to postulate trauma, emotion, and the short umbilical cord as the prominent exciting causes, students of the subject agree that altogether too much stress has been laid upon these possible causes to the neglect of the actually more potent predisposing causes. The most important of the predisposing causes are listed by Polak as (1) toxemia, (2) torsion and (3) endometrial disease. He notes that among the exciting causes may be mentioned direct trauma, such as kicks, falls, blows and violent muscular effort, as for example, the lifting of heavy weights. He says, "the fact that trauma actually figures in the causation of this accident is illustrated in our records of admissions; for among the working class most of our cases were admitted on Saturday or Monday nights, with histories of sexual trauma or of doing a heavy wash or lifting a portable wash tub."

TORSION AS A CAUSE OF PLACENTAL INFARCTION

Obstruction to the venous flow from the uterus through torsion or other misplacement, or thrombosis of the large venous trunks resulting in a back-pressure, causing the smaller veins and capillaries to give way, is a conception held by many who have investigated the pathogenesis of ablatio placentae. Morse[5], after extensive animal experimentation, concluded that "the underlying cause of this complication is an obstruction to the circulation of the blood through the uterus. Probably an excessive mobility of the human uterus predisposes to a similar, though spontaneous, constriction of the veins in the broad ligament of women advanced in pregnancy." He held that the "excessive mobility" of the pregnant uterus brought about conditions similar to those seen when pedunculated myomata undergo torsion. He succeeded in producing premature detachment of the placenta by twisting the uterus of pregnant animals. A warning is appended by Morse, "Closer attention should be given to the degree of support the abdominal wall affords the uterus, especially in multiparous women." Polak has reported similar findings, and asserts that some degree of uterine torsion exists in every pregnancy.

Endometrial Disease—This is cited by Polak as a certain cause of ablatio placentae, but few other authors have referred to this. Holmes, however, says, "From our present knowledge we may perhaps declare that endometritis is the most fruitful cause; multiparae are more prone to endometrial disease than primiparae, and ablatio placentae is more frequent in the former than in the latter."

Attributed Causes in Author's Series: The causes recorded as exciting or predisposing to premature separation of the placenta in the series of cases here considered, may be tabulated as follows:

Toxemia	37 Cases
Eclampsia	2 "
Trauma	5 "
Fibroid	2 "
Fibroid and Toxemia	1 Case
Procidentia	1 "
Unknown	39 Cases
	87 Cases

These figures are about in accordance with those of most of the authors whose reports I have examined. Toxemia is generally credited with being associated with a large proportion of cases. The greater proportion of our cases would be placed in the toxemia-chronic nephritis group, if considered solely from the clinical standpoint.

Toxemia—A number of observers had noted the occurrence of toxic symptoms in pregnant women who later on suffered premature separation of the placenta.

Winter, in 1884, showed that cases of ablatio placentae not infrequently had an associated kidney lesion, expressed by the presence of albuminous urine. Couvelaire, in 1911, described the new phase of ablatio, which he designated as utero-placental apoplexy. Essen-Möller, in 1913, observed that in the course of seven thousand confinements on his service at the University of Lund (Sweden) twenty-nine women had

retro-placental hemorrhage. Eleven of these cases had albuminuria together with six more who had slight traces of albumin in the urine. To these observations he added those of eclampsia and retroplacental hemorrhage, of which he found a number of examples in the literature, and saw two on his own service. He remarked likewise that "the general condition of the patients who presented ablatio placentae was comparable to that of individuals afflicted with a general intoxication, such as eclampsia. Certain manifestations, such as rise of blood pressure, common to both the conditions under discussion, are so constant in their association as to give strong presumptive evidence that retroplacental hemorrhage and eclampsia have a common origin."

This line of reasoning has been carried much further by Foster Kellogg[9] who intensively studied a selected group of twenty-nine cases collected from a larger group of ablatio placentae patients, at the Boston Lying-in Hospital. The object which he and his collaborators held constantly before them was to determine, if possible, the relation which the kidney lesions, observed in certain cases of ablatio placentae, bore to the causation and prognosis of the "accident". They arrived at the conclusion that "the etiologic factor in toxemia of pregnancy and toxic separation of the placenta is sometimes, at least, the same." They based this belief on the fact that they were able to collect eight cases of definite toxemia without convulsions (non-nephritic, as far as they were able to judge from the available data) wherein the placenta separated just as the signs and symptoms of toxemia had abated. Concerning the actual knowledge of what really takes place in the kidney during the unfolding of the clinical picture we call premature separation of the normally implanted placenta, they could claim very little. But they believed that this information should be sought in further study of the pathologic physiology in the kidneys, rather than along lines of necropsy findings. To this end they recommended "that every obstetrician and obstetrical service make an effort to link up these cases with the 'toxemia-chronic nephritic' group, and study them with careful tests, gathering all available data over the longest possible period."

In many of Williams' most severe cases, "preeclamptic toxemia, eclampsia, chronic nephritis or 'essential hypertension' preceded or accompanied the accident." A case occurring on our service gives evidence on this point.

Boston City Hospital, No. 602,277: *Eclampsia and Ablatio Placentae.*

Mrs. Isabel B., primigravida, white, aged 17 years. Past history irrelevant. Last menstruation June 13, 1929; estimated termination of gestation, March 20, 1930.

Admitted January 29, 1930, in convulsions, with a history of terrific frontal and occipital headaches for the past two weeks; edema of both legs for one month previous, and one convulsion ten days ago. Several more convulsions had occurred at home on the day of admission, and during her transfer to the hospital and admission two more took place. At this time the fetus was active; blood pressure was 144/80, and a trace of albumin was present in the urine.

Modified Stroganoff treatment with magnesium sulphate intravenously brought a prompt response. The symptoms subsided to such an extent that on the seventh day the patient was taken to the clinic for demonstration. On her return to the ward she developed abdominal pain and moderate bleeding began. Immediate cesarean section disclosed complete separation of the placenta. Baby stillborn. A blood transfusion was done the following day and the convalescence was normal thereafter. She was discharged February 16, 1930, with a blood pressure of 110/70.

As giving evidence pointing toward a traumatic etiology, the following case may be cited.

Boston City Hospital, No. 357,607; *Ablatio Placentae Possibly Due to Trauma.*

Mrs. D. R., multipara, at term, 42 years of age. The history given on admission was that the husband had kicked the patient "in the stomach", causing a sudden severe hemorrhage. Delivery of a stillborn infant weighing eight pounds was accomplished with high forceps. Complete placental separation had taken place. The mother expired at the end of two hours, the symptoms being those of profound shock.

PATHOLOGY

Williams in 1915 published a colored plate showing the hemorrhagic infiltration of uterus and ovary and describing the picture presented by two specimens obtained in the cases upon which his paper was based. "The uterus . . . was found to present a very striking appearance, the whole right side being dark purplish red in color, and resembled an ovarian tumor with a twisted pedicle." Of a second case he says, ". . . . the uterus . . . . showed no tendency to contract and presented the consistency of a wet leather sac . . . the upper part of the body of the uterus presented a peculiar purplish, bluish, coppery appearance similar to that observed in Case 1; the right tube and ovary were reddish black in color and suggested the conditions observed in an ovarian cyst with a twisted pedicle."

When accomplishing delivery by cesarean section, Morse found the uterus firm and bluish-black in color; blood was extravasated beneath the peritoneum covering the uterus, particularly about the upper portion of the attachments of the broad ligaments. When the uterine cavity was opened, about 500 cc. of fluid and clotted blood gushed out. The uterus remained flabby and without contractions, despite every measure employed to induce them, so that hysterectomy became necessary. Examination of the excised specimen showed on cross-section that there was a hemorrhagic infiltration 0.5 to one centimeter in depth beneath the peritoneal surface, being most intense on the anterior wall. Sections taken at the placental site showed numerous hemorrhages into the decidua basalis,

but no leucocytic infiltration. The blood vessels were normal, except that several veins in the musculature beneath the placental site were thrombosed, while in some of the smaller arteries the subepithelial connective tissue was increased and myxomatous in structure. Throughout the uterine wall, but most noticeable in the outer half, were extravasations of blood, accompanied by edema and frequently by disassociation of the muscle fibers. This effusion proceeded from the capillaries.

In Scott's pathological examination special attention was given to the placenta. In one case this structure appeared normal macroscopically, but upon microscopic inspection the walls of some of the arteries were thickened, though the chorionic villi were otherwise normal. Upon the maternal surface of the placenta there was a circle consisting of a ridge of tissue about 1.5 centimeters high, surrounding a depressed area in the placental substance, which somewhat resembled a place where the placenta was detached and separated from the uterine wall by a blood clot. Another placenta examined by Scott showed on the maternal surface, five yellowish white infarcts, two or three centimeters in diameter; two red infarcts, two, and two and one-half centimeters in diameter; and an area of hemorrhage in the placental substance, represented by a blood clot, five by four and one-half by three and one-half centimeters in size.

Prentiss Willson[2] in 1922 made "an intensive study of the clinical and pathological data of all the cases of utero-placental apoplexy reported up to that time." The pathological discussion is too extensive to be given in toto. I can only quote Willson's own summary, which is as follows: "In the picture of utero-placental apoplexy the placenta, normally located in the upper part of the uterus, is either partially or totally separated from its attachment to the uterine wall. The resulting intra-uterine bleeding may remain entirely concealed, but more frequently is manifested by external hemorrhage. The uterine wall is the site of a hemorrhagic extravasation of varying extent and severity, which, however, tends to be worse in the neighborhood of the placental site and in the superficial rather than in the deeper layers. Edema is frequently present. The muscular fibers frequently show varying degrees of degeneration, which may be marked and extensive. The most constantly present vascular lesion is thrombosis of the smaller veins, especially back of the placental site. The decidua, particularly the decidua basalis, is the site of a hemorrhagic infiltration and frequently shows necrosis. In about fifteen percent of the cases, tears of the peritoneal coat are present. These may involve the myometrium to a depth of a few millimeters, and are usually located over the placental site. Intra-abdominal bleeding from them is usually present and may be severe, or the effusion may be only a bloody serum. The broad ligaments, tubes and ovaries are very frequently the site of a hemorrhagic infiltration. In about 90 per cent of the cases there is either clinical or pathological evidence of a toxemia."

SYMPTOMS

When separation of the placenta is only partial there may be little or no pain and constitutional symptoms may be negligible or wholly absent. Bleeding is slight and soon ceases. Yet in some cases the onset is sudden and acute; the pain is severe—being usually described as "tearing". If this is localized at the placental site, it furnishes a highly characteristic sign, pointing to the formation of a retroplacental clot. On palpation the uterus is tender and so rigid that it is often difficult to outline the position of the fetus.

In sudden separation, on the contrary, when a large portion of the placenta is torn loose, there is usually a violent fetal movement, due to sudden asphyxia. Nausea and vomiting occur, the patient complains of faintness and vertigo, and external hemorrhage is soon in evidence. In the apoplectic variety the patient usually goes into profound shock, though the external hemorrhage may be so slight as to offer no explanation of the grave nature of collapse. It is in these cases that the uterus assumes a board-like hardness, and sections on autopsy reveal the peculiar bluish-black color of the uterus so frequently mentioned in the quoted pathological descriptions.

DIAGNOSIS

It is hardly necessary to emphasize the importance of early diagnosis. When a woman, particularly a multipara in the last weeks of pregnancy, at term, or in the first stage of labor is suddenly seized with acute abdominal pain and vaginal bleeding, however slight, premature separation of the placenta should be immediately considered. This is especially true if she is a nephritic or has previously manifested signs of toxemia.

Two conditions with which abruptio placentae may be confused are placenta praevia and rupture of the uterus without separation of the placenta.

We have observed that pain and external bleeding were constant manifestations in most cases of abruptio, and the constitutional symptoms presented by the patient are more severe than the visible bleeding would warrant. Concealed hemorrhage is relatively infrequent. Only eleven women of the eighty-seven cases here reported, presented no evidence of external hemorrhage. The severe type of ablatio placentae presents the typical rigid uterus, and cessation of fetal movements in most instances.

In placenta praevia, pain is usually absent unless the patient is in labor. The constitutional symptoms are in proportion to the

amount of blood lost externally; the uterus is soft; there is no cessation of fetal life.

Rupture of the uterus usually takes place during labor, except when due to external injury. The uterus is contracted and empty, and the fetus is near by. Labor ceases and on examination the rent in the uterus may be felt.

It is emphasized by Scott that an important differential point between abruptio placentae and placenta previa is whether the placenta can be felt. Two cases he found in the literature contained reports of palpation of a placenta which was afterwards found entirely free. Williams says that when the bleeding is external there should be no difficulty in making the diagnosis of premature separation. "The diagnosis is assured by introducing the finger through the cervical canal and demonstrating the absence of placenta praevia. In the concealed variety, the board-like consistency of the uterus enables one to make a positive diagnosis before the appearance of symptoms indicative of concealed hemorrhage or of shock. Unfortunately, however, this sign is not always available." When it is, he considers it pathognomonic. Polak italicizes the differentiation from rupture of the uterus: *"the latter is attended with cessation of labor pains, recession of the presenting part, diminution in the size of the uterine tumor, and when complete, with the development of a separate abdominal tumor."*

TREATMENT

While Williams tells us that "the question of treatment can be disposed of in a few words," others disagree and discuss at great length the best method of handling this grave complication of pregnancy. To Polak[3] the conservative treatment has given the best results in the majority of those cases seen only after the condition has progressed. The conservative plan employed in the management of his cases consists in combating shock with morphia, hypodermoclysis and blood transfusion; membranes are ruptured and the vagina is firmly packed with gauze and a Beck abdominal binder, to control further uterine distention, is firmly applied. Three minimum doses of pituitrin may be given and the patient is allowed to deliver spontaneously or the labor is terminated with low forceps. When, however, the conservative plan fails to arrest the intrauterine bleeding and the uterus becomes over-distended with blood, and the cervix fails to efface and dilate, radical measures must be taken without delay. The patient is transfused and the child is delivered by cesarean with or without hysterectomy. If the case is seen early enough, "not in labor, or in the first stage of labor, blood transfusion followed by cesarean section under local infiltration anesthesia should be a procedure of choice." The blood transfusion he regards as of paramount importance even before any operative procedure is undertaken. In mild cases, with a dilated cervix, Greenhill recommends immediate delivery by forceps or version and extraction; if the cervix is not dilated, rupture of the bag of waters may suffice. In severe cases, an effort to check hemorrhage must be made at once. This is usually best accomplished by that method "which will empty the uterus quickest and with the least harm to the mother. The baby is not given much consideration because nearly all of them die *in utero* before the physician arrives."

The methods of delivery used in our cases may be tabulated as follows:

METHOD OF DELIVERY

Spontaneous	18 Cases
Forceps (all types)	10 "
Version	9 "
Bag (alone)	3 "
Bag with Version	4 "
Bag with Breech Extraction	1 Case
Breech Extraction	5 Cases
Caesarean Section	
Vaginal	1 Case
Abdominal	33 Cases
Postmortem	1 Case
Postmortem Version	1 "
Porro	1 "
	87 Cases

Rock[15] writes, "Irving has changed the standard treatment for toxic separation of the placenta from Caesarean, with or without hysterectomy, to conservative treatment from below. The patient is treated for shock with transfusion if necessary, the membranes are ruptured, the vagina and cervix are tightly packed, and an abdominal binder, tightened by a Spanish windlass, is applied. This is exactly the treatment recommended in Jellett's 'Manual of Midwifery' and described as the standard treatment in the Dublin Rotunda over twenty years ago." Two cases of toxic ablatio on our service, not included in these series, were treated by the Dublin method since January 1, 1932, with good results. In both instances the fetuses were dead in the uterus before the above treatment was instituted.

In general, cesarean section has been our procedure of choice, but many times is best delayed until there has been a suitable reaction from the condition of "shock". The conditions governing the performance of laparotomy in any emergency must, of course, be taken into consideration at this time. Blood transfusion has lessened the hazard during the past few years. As the delivery is often followed by severe and rapidly fatal hemorrhage, the danger is by no means over when the third stage is ended. In a large percentage of these cases, anuria is a complication greatly to be feared, and should be combated as soon as the patient comes under observation. If conditions warrant it, active treatment with fluids by rectal drip, subcutaneously and by mouth, should be instituted at once. This should be reinforced

by the intravenous administration of a 25 per cent glucose solution and by blood transfusion.

PROGNOSIS

The outlook is always grave in ablatio placentae. When frank hemorrhage is early in evidence, the patient is more likely to seek medical aid without delay; early diagnosis and prompt treatment, then, increase her chances of life. With the concealed variety the mortality is always increased, for the signs of shock are not correctly interpreted, and the patient is moribund before she receives any proper care. The mortality rates vary greatly in different services. Greenhill says the prognosis is "very bad. Many mothers and practically all the babies die." Polak gives his mortality as one in sixteen; Prentiss Willson's collected statistics on sixty-nine cases give thirty-eight deaths, a mortality of 55%.

In the series on which this paper is based there were sixteen maternal deaths, while seventy-one infants were lost. The mortality in the cases of complete separation was much higher than when separation was only partial.

Divided as to the degree of separation the figures are as follows:

	Partial (49 Cases—50 Babies)	*Complete* (38 Cases)	Total %
Maternal	1 Death (2%)	15 Deaths (39.5%)	18.4%
Fetal	33 Deaths (66%)	38 " (100%)	80.7%

Two patients with complete ablatio were moribund on admission to the Hospital, and died before any treatment could be instituted. A postmortem cesarean was performed on one, and an internal podalic version on the other. The placentae were completely detached, and the babies were dead in both instances. The total corrected mortality, therefore, was fourteen, or sixteen per cent of all the cases of premature separation of the placenta.

MORTALITY

Method	Total
High Forceps	4
Version	6
Normal	1
Cesarean—Vaginal	1
" Abdominal	2
	14

UNDELIVERED CASES

Postmortem Cesarean	1
" Version	1
	2

Cesarean section with transfusion gave us the best results. Thirty-three cases, or 38%, were treated by the abdominal route with only two deaths.

The following is the abstract of the records of the two patients who died following cesarean section:

1. A 40 year para nine, two weeks before term, bleeding for over 24 hours, entered with all the typical symptoms of a severe abruptio. Classical cesarean disclosed the uterus to be apoplectic; dead seven pound fetus and a completely separated placenta removed. Patient died on fifth day of edema of the lungs.

2. A 44 year old para thirteen was brought into the Hospital in profound shock. Uterine hemorrhage took place 20 hours before admission. Diagnosis of abruptio placentae was made. Urine contained a moderate trace of albumin. Emptying of the uterus by abdominal route was chosen as the best procedure, followed by immediate transfusion. Low cervical cesarean was performed. Patient died 15 minutes after the operation. This obviously was a case where treatment was too late.

SUMMARY

1. A series of 87 cases of premature separation of the normally implanted placenta is presented. These patients were treated at the Boston City Hospital during the years 1916-1931 inclusive.
2. The incidence in our series is one to every 159 deliveries. This varies widely in different localities, and different hospitals in the same locality.
3. Some of the best papers on the subject of ablatio placentae are analyzed and discussed in comparison with the findings in our own series.
4. Forty-two and one-half per cent of our cases of ablatio placentae definitely fall into the toxemia-chronic nephritic group.
5. Fifty-four per cent of our series belong to the partial and forty-six to the complete premature separation of the normally situated placenta.
6. Cesarean section with transfusion gave the best results in this series.

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END RESULTS IN THE INJECTION TREATMENT OF VARICOSE VEINS

A Report on 314 Cases From the Peripheral Circulatory Clinic* Of The Massachusetts General Hospital

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REPORTS of the end results in the treatment of varicose veins by the injection method are, with the single exception of that by Howard[1] so favorable that less experienced workers in this field might assume that this type of treatment is next to infallible. We believe that the publishing of the figures from our clinic, based on the study of 314 cases examined in some instances as long as three years after the last injection, may be of constructive value in correcting this impression, and may be of assistance in preventing reduplication of errors which we feel we have made, and are confident are being made in certain other clinics throughout the country.

Critical examination of the published reports from other centers gives a distinct impression in many instances of optimism in arriving at conclusions. The more important published reports referring to the end results of the injection treatment are of interest for comparison with these figures. Kilbourne[2] reports the average total recurrence rate of varicosities treated by the injection method as 6%. This figure is based on questionnaires sent to Gaugier and Sicard who report 1% recurrences in a series of 15,000 cases; Linser who reports 5 to 7% unimproved cases at the end of three years in a series of 15,000; Delater who gives 5% recurrences in 890 cases at the end of three years, and Nobl who reports 6% in 780 cases at the end of three years. Unfortunately this report fails to give any of the details as to how these figures were compiled. De Takáts[3], without specifying the time elapsed, reports 10.6% of failures in 389 cases, relying on the patient returning as requested every three months for reëxamination. McPheeters[4] in the third edition of his excellent monograph on varicose veins does not include his figures for recurrences but states that they are in the hands of the publisher at the present time. Weeks and Mueller[5] in 325 cases, using essentially the same technique as we have employed, state that they have had no cases of recanalization of the injected veins when the quinine and urethane preparation was used. Jensen[6] reports 0.8% recurrences, but apparently bases this figure on the assumption that all save the two patients who reported back with recurrences were free from them. The carefully compiled figures published by Howard[1] referred to above as being at variance with those of other writers, show recurrence in 79% of all his patients and 98% in those followed one year.

Believing that those interested in this subject will find our data of little significance unless accompanied by the details of our method, I have attempted below to clarify the basis on which the work was done before giving our statistics.

Solution: The solution we employed in this series was that advocated by Genevrier and enthusiastically endorsed by Douthwaite[7] of 13% quinine hydrochloride and 6% urethane. We have used 20, 30 and 40% sodium salicylate solutions in forty-two injections; 20% sodium chloride in twenty-eight, and 50% glucose in nine, but these represent too small a number to be of any real significance. However, such experience as we did have with these other solutions was even more disappointing than with the quinine preparation. The dosage ranged between an initial test dose of 0.5 cc. and 4 cc. at each visit.

Technique of injection: Our technique was to have the patient sit on the edge of the table with the feet on a chair; injection at two points was ordinarily done at one sitting with an average dose of 1.5 cc. at each point. With the smaller varices the patient was allowed to stand in order to distend the vein during the injection. In the majority of cases the treatments were started at the junction of the middle and lower thirds of the leg and subsequent injections were given at progressively higher levels. Every effort was made to persist in treating the cases until all varicosities were thrombosed, and special emphasis from the start was laid on the importance of thrombosing the main trunk from knee to groin when this could be made out. The vein was not constricted with tourniquets or stripped of blood during the injection of the solution save in a relatively small percentage of the cases. Immediate pressure with a piece of gauze was made over the puncture wound directly following the injection when the needle was withdrawn. Woven supporting bandages were worn during the course of treatment and for two weeks thereafter, by all the women showing more than a slight degree of varicosities whereas the men were treated without bandages

*The Peripheral Circulatory Clinic, made up of Drs. A. W. Allen, L. S. McKittrick, J. C. White, H. H. Faxon, R. S. Smithwick, R. Linton and T. C. Pratt, was established at the Massachusetts General Hospital in December, 1928, and has been in charge of the treatment of varicose veins at the hospital since that time.

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save where edema or ulcers were present. Large varicosities above the knee were constricted by wide adhesive strapping after injection. The position of the varicosities was marked out on a stamped diagram of the legs (fig. I) at the

FIG. I.

Type of diagram used for marking location of varicosities on the anterior aspect; a similar one is used for veins on the posterior aspect.

first visit and the site of each injection was marked on this chart following each treatment. When no further varicosities could be found to inject, the patient was instructed to report at the end of three months and further injections were carried out at that time if any unthrombosed veins could be discovered.

We were able to classify the 314 cases, with the percentage of cases found in each, into the four following groups:

Group I. "Good result—no further treatment needed" 27.3%
Group II. "Fair result—further treatment not urgent" 53.3%
Group III. "Poor result—further treatment urgent" 2.0%
Group IV. "Poor result—saphenous ligation indicated" 17.4%

Group II represents those cases that showed recurrences, new veins, or both, but whose varicosities were not great in extent or of large size. The few cases in Group III showed extensive varicosities with ulcers that had failed to respond to our injections. It was the demand for immediate attention to this complication that was responsible for the segregation of these patients from Group IV in which they would otherwise have been rated.

The complete table of figures follows (Fig. II):

Number of cases: We sent one or more letters to the first 613 patients treated at the clinic after an elapsed average period of 1.4 years following their last injection, and the 314 or 51% here tabulated came back for a personal examination.

Percentage of women: 248 or 79% of our cases were women, and 66 or 21% men. We did not further subdivide these figures to show the ratio between the sexes in the different decades of life as has been done with remarkable consistency of results by other writers[4, 5].

Average age: The average age was remarkably constant in each of the groups, and the average age figure of 49 years for the males approximates the 43 year figure for the females.

Average duration: There was also surprisingly little difference in the average duration of symptoms between men and women. Thus the men had an average duration of twelve years, while the women had 14 years. Often the figure was of necessity rather uncertain as the patients would state when asked on this point at the first visit that the varicosities had been present, "as long as they could remember".

Number of injections: 1534, or 77% of the injections were given to the women and 458 or 23% to the men, which corresponds almost exactly with the ratio of men to women in the clinic already noted.

Average number of injections: As would be expected, group I showed the fewest number of injections per patient as it represented by and large the mildest forms of varicosities with which we had to deal; likewise the corollary is true in that groups III and IV were made up of patients with the most extensive degree of the condition and required the largest number of injections per patient. There was little difference between the sexes in the average number of injections per patient given; thus the men had slightly over, and the women slightly under, seven per patient. After the initial test dose, two injections were usually done at one sitting so that the average number of visits to the clinic was slightly more than one-half the average number of injections.

Relieved of pain: The "pain" referred to under this heading was at best a broad term and included the vague heaviness of the extremities spoken of by so many patients as well as

FIG. II

STATISTICAL DATA ON END RESULTS

	Number of cases	Per cent of women	Average age	Average duration	Number of injections	Average number of injections	Relieved of pain	Relieved of edema	Per cent of ulcers healed	Per cent of recurrences	Average elapsed time
Group I	86	69	45 yrs.	9 yrs.	387	4	59%	53%	88	14	1 yr.
Group II	168	92	45 yrs.	14 yrs.	1074	7	40%	10%	76	78	1.5 yrs.
Group III	6	66	47 yrs.	13 yrs.	43	8	0%	0%	17	66	1.5 yrs.
Group IV	54	54	44 yrs.	13 yrs.	488	9	9%	12%	65	93	1.5 yrs.
Total	314	79	45 yrs.	12 yrs.	1992	7	38%	19%	61	63	1.4 yrs.

the more severe discomfort found in some ulcer cases. We attempted to exclude from the list of those rated as suffering "pain" all patients whose complaint seemed chiefly due to pronated feet, inadequate arterial circulation, or any condition other than the varicosities. The percentages noted refer to the 137 patients, or 43% of the total 314 of the series, who complained of "pain" at their original visit. In part we must have been in error in originally attributing their discomfort to the veins, as it will be noted that in group I, where no veins of note could be made out on their return visit, 41% (14 cases), still complained of "pain".

The patients' attitude was, as Howard[1] also found, distinctly more favorable than our judgment of the case. Thus fig. III shows that of

FIG. III

PATIENTS' ATTITUDE TOWARD THE RESULTS OF THE INJECTION TREATMENT

	Enthusiastic		Moderately pleased		Disappointed	
	Number of cases questioned	Percentage of number of cases questioned	Number of cases questioned	Percentage of number of cases questioned	Number of cases questioned	Percentage of number of cases questioned
Group I	44	82	9	16	1	2
Group II	51	57	31	34	8	9
Group IV	6	23	18	69	2	8
Total	101	59	58	34	11	7

the 170 patients, including a representative number from each of groups I, II, and IV, questioned as to their feeling about the results of the treatment, 101 or 59% were "enthusiastic," 58 or 34% were "moderately pleased" and but 11 or 7% "disappointed", which bears out the necessity of properly evaluating the patients' attitude in measuring the success of the treatment.

Relieved of edema: The "edema" here referred to we believed was caused primarily by the condition of the veins. One hundred and twenty-seven or 40% of the 314 cases showed, at the time of their first visit, edema which we considered was caused in part or wholly by their varicosities. Where there was any suspicion of a cardiac or nephritic basis, a medical consultation was secured before the injections were started.

Percentage of ulcers healed: By this we mean that the lesion had healed under treatment and stayed closed during the period over which the case was followed. A urine analysis for sugar and a blood Wassermann were done routinely on the 69 patients, or 22% of the total, who showed ulcerations on entry to the clinic. The leg was given a supporting bandage from the time the case was first seen, and the patient advised to persist in its use if she experienced any difficulty on attempting its removal two weeks after the last injection or after the ulcer had healed. Lately we have used the "rubber sponge" dressing advocated by McPheeters[4] with distinct success, but at the time these cases were being treated that type of dressing was not employed.

Percentage recurrences: This is further amplified by the following table (Fig. IV):

By referring to the diagrams of the veins on the original card, we believe that we could determine with only a small degree of error whether the veins present at the return visit were true "recurrences" or new varicosities which had developed in the interval since the patient was last seen, and every possible effort was made to draw this distinction. Any vein once thrombosed at the previous visits in which a return of venous flow could be demonstrated by palpation was classed as a recurrence even though small in size.

It might seem inconsistent to report any recurrences in the first group; however, in the 12% noted there was definite evidence that veins once thrombosed were again carrying some blood. Without exception these were small in size, very limited in extent and were given the

FIG. IV

DATA ON NEW VARICOSITIES AND RECURRENCES IN DETAIL

	New varicosities	Per cent of new varicosities	Extensive recurrences	Per cent of extensive recurrences	Slight recurrences	Per cent of slight recurrences	Total recurrences, extensive and sl.	Per cent of total recurrences, extensive and sl.
Group I	11	13	0	0	12	14	12	14
Group II	52	31	31	18	101	60	132	78
Group III	3	50	1	16	3	50	4	66
Group IV	14	26	23	42	28	51	50	93
Total	80	25	55	17	144	46	198	63

one treatment deemed necessary at the time of their "follow up" visit.

As would be expected, there was no sharp line between the cases showing recurrences and those that had developed new veins, the two conditions being found frequently in the same patient. No mathematical measure of the size of the veins seemed feasible in differentiating "extensive" and "slight" recurrences, and the former rating was based more on the extent of the recurrences than the caliber of the vein.

Average elapsed time: The time interval referred to is the elapsed period between the last injection and the visit in answer to our letter, although in a fair number of instances the last injection was at one of the three month "follow ups" and not at the original course of the treatments. In no instance was the first visit to the clinic less than a year previous to compiling these figures and in some cases three years had elapsed.

Discussion: Naturally the relatively disappointing results we had obtained in our work led us to search for reasons that might explain some of our failures. In retrospect the following five factors would seem to have been chiefly instrumental in our failure to obtain more permanent results.

1. *Our failure to obliterate the main saphenous trunk from above the knee up to its very opening into the femoral vein.* As has been stated, we appreciated at the outset of our work the importance of this and were wholly in accord with views expressed by Homans[8], McPheeters[9], O'Neil[10] and many others reiterating the long-accepted fundamental necessity of relieving the superficial venous system of the back pressure that would exist if any of the upper portion of a varicosed saphenous trunk were left patent. In many instances we could feel the thrombosis as high as the vein could be made out, but this was not so high as the saphenous opening. In other cases the upper end of the vein was not discovered because we did not employ at that time the "percussion test" of McPheeters[9] which we now find of great assistance in examining every patient for varicosities above the knee. In still others, due to obesity, this main trunk, although suspected, could not be located with sufficient accuracy to make the injection in our estimation of its upper third safe or practical. Finally some patients in whom we believe we secured thrombosis up to the saphenous opening presented themselves with definite clinical evidence of recurrence in the main trunk in the thigh. We now believe that the most satisfactory results in the treatment of cases showing a varicosed main saphenous trunk above the knee is obtained by primary high ligation as advocated by Kern[11], de Takáts[12], and others with retrograde injection of the vein at the time of operation, and subsequent injection of the remaining varicosities.

2. *Our practice of not attempting save in rare cases to strip the vein, at least in part, of its blood before injection.* From the start we have appreciated the general principle reiterated by McPheeters[13] that the more empty the segment of vein at the time of injection the more concentrated will be the sclerosing solution and the better the resulting thrombosis. However, clinically, using the quinine preparation, it seemed to us that our technique gave a resulting thrombosis that was altogether satisfactory even though considerable dilution with the blood in the vein must have taken place, and the solution been relatively soon swept away from that portion of the vein that we were attacking. We realized further that the position of the limb was in many cases the deciding factor in determining the direction of the venous flow in the varicosities, but only in rare instances did we carry out the injection with the leg horizontal. We adopted our simpler method because clinically it seemed adequate and the technique of stripping the vein and using tourniquets to retard the escape of the solution directly after injection carried with it the risk of an increased incidence of sloughs and was more difficult from a practical point of view to carry out in a clinic such as ours. We believe at the present time that although the smaller veins can be treated by the technique we employed in our cases, better results will be obtained if some form of emptying the vein in part of its blood, and delaying the solution's escape from the area treated, be followed out with the larger varicosities and the main trunks.

3. *Our failure in the earlier work of the clinic fully to appreciate the different problems each case presented.* A prime requisite in the intelligent treatment of any case is a thorough understanding of the significance of the Trendelenburg test with its modifications; the rôle played by the perforating branches; the possibility of direct arteriovenous communications, etc. We feel from our three and one-half years' experience that the surgeon who believes that there is nothing more required than a syringe, some solution, and a patient to effect the permanent obliteration of varicose veins, still has much to learn.

4. *Our failure to insist on the use of some form of bandage or support in the ulcer cases for a period of months rather than weeks.* It has been logically pointed out by McPheeters[4] and others that in an ulcer area which has suffered over a long time from poor oxygenation, it will take a prolonged period to secure a return of the tissues to their best condition. During this time, and in fact in some cases for an indefinite period, the support an elastic bandage affords is not merely helpful, but necessary for a successful outcome. To a lesser extent the same principle might be applied to cases of marked varicosities without the complication of

ulcers. Here again it would seem that if the limb could be supported until organization of the thrombus were well advanced, the incidence of recurrence would be lessened.

5. *Our use of the quinine preparation in essentially all of our cases.* We feel as strongly at the present time as we ever did that quinine hydrochloride and urethane is the best of the solutions available, being the most irritating of the number which can be safely used, and therefore the most effective in relatively small doses and even in the presence of considerable dilution. The absence of cramps upon injecting is another advantage, but in those cases with extremely large varicosities in which a considerable bulk of the injection fluid would seem to be desirable we suspect we might have employed one of the other solutions to greater advantage. As a general rule it is true that any routine procedure must be modified at times to fit the special case, and in this instance had we shown a greater flexibility in the choice of solutions we would be in a better position more fairly to evaluate the benefits attaching to each.

Despite the somewhat pessimistic note of this report, our confidence in the injection method for the treatment of varicose veins is unabated, inasmuch as we feel that the suggested changes in the technique, together with supplementary high ligation in selected cases will give far better results than we have so far secured. Both on the basis of fundamental considerations of the nature of varicosities, and on the data compiled by Kilbourne[2] of results from operative procedures alone, it seems to us that the injection method has definitely supplanted the former reliance on surgery to give relief in this condition.

SUMMARY

1. By the injection method alone of treating varicose veins described above in detail, 63% of 314 cases followed for an average period of 1.4 years showed recurrences.

2. Twenty-five per cent of the total number showed new varicosities.

3. In the same series over a similar period of time, 28% were relieved of pain, 19% relieved of edema, and 61% of the ulcers were healed.

4. In a large number of the cases the patients' attitude toward the results was more favorable than we believe was warranted.

5. Only the 314 cases that returned for follow-up observation of over 613 cases treated up to the time this study was undertaken are used as a basis for this report.

CONCLUSIONS

1. Primary high ligation of the main saphenous trunk when this is varicosed is a necessary adjunct to the injection method of treatment, if the best results are to be secured.

2. The practice of stripping the vein, in part at least, of its blood before injecting, and restricting the injection solution to the area treated for an appreciable time after injecting, will give better results when the larger varicosities are being dealt with.

3. Continued support of ulcer cases over an indefinite period after the lesion has healed is often desirable.

4. Quinine hydrochloride and urethane is the preparation of choice, although exceptions to its exclusive use may arise.

5. We believe the best results in the injection treatment of varicosities will be obtained by employing our original technique with the suggested modifications, and that this method of treatment definitely supplants the former operative procedures.

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CLINICAL TRIALS WITH THE SO-CALLED FEMALE SEX HORMONES*

BY JOHN ROCK, M.D.†

FROM the enormous amount of work done during the last decade on the hormones concerned primarily with the function of the female sex apparatus, several hitherto unsuspected relationships between certain endocrine glands and parts of glands may be safely postulated. On these assumptions newer theories have been built and in accordance with these theories different methods of treatment for functional disturbance of the female sex apparatus have been tried.

There is no need here to discuss in detail the newer physiological concepts involved in these trials, nor the brilliant laboratory work which gave them substance. Let me say only enough to clarify the clinical situation as we find it modified by scientific research. Some statements are mere physiological concepts; some seem to be established facts. On them we clinicians can much more safely plan our practical attempts to relieve functional disturbances than on all the endocrinological nonsense that overenthusiastic business men have elaborated to our confusion.

The anterior pituitary gland is commonly credited with three identified products, and with a possible fourth as yet unidentified. The first is the growth factor, prominently concerned with acromegaly, and with which we have no dealings here. Let us put it one side. The second and third products are Prolan A and Prolan B. Prolan A stimulates the essential function of the ovary to develop the primitive germinal centres into Graafian follicles. Prolan B acts on the mature follicle to form the corpus luteum. The fourth hormone from the anterior pituitary has been called the metabolic one, hitherto characterized by its insufficiency, when sugar-tolerance may be lowered, with or without obesity of the peculiar type called "dolorous". This metabolic hormone must be kept in mind for Novak[3] theorizes that it may be associated with or even, itself, be the "bleeding factor" which affects the vessels of the endometrium in such a way as to permit escape of blood. I mention it merely to complete the list of the better known anterior pituitary products, with Prolan A and Prolan B with which we are concerned. Soon perhaps this fourth, the possible "bleeding factor" will have clinical importance. It has none now.

Prolan A, then, stimulates the production in the ovary of the Graafian follicle. From this structure is derived the specific female sex hormone, par-excellence, called estrin and marketed in this country as Theelin, Progynon, and Amniotin. It is the hormone which induces regeneration or proliferation of the endometrium. In laboratory animals, and probably in women, it causes characteristic uterine and vaginal hypertrophy. *Pari passu* with the vaginal changes, there occur changes in the kind of cell which can be washed out of the vagina, so that the presence of estrin in the organism can be detected by examination of vaginal washings—the so-called Allen-Doisy test. The application of this test to women has not been adequately made, but on animals it is a standard procedure. Estrin is excreted in the urine of normal, non-pregnant individuals, in such small amounts as to give negative readings when the urine is injected into mice or rats unless this urine is extracted and concentrated. During pregnancy, or when administered as a drug, estrin appears in the urine in easily demonstrable amounts. This estrin, then, is the hormone which regenerates the endometrium after menstruation has denuded the upper layers. Its stimulating antecedent is Prolan A.

After Prolan A's work is done, and the follicle is mature, normally after it has ruptured, Prolan B exerts its effect, and the corpus luteum is developed from the lining of the follicle. The corpus luteum continues to produce some estrin but its peculiar product is that which Corner has called progestin, the only well known hormone to which the name corpus luteum can be clinically attached. One of its principal functions is to cause the so-called pregestational changes in the already proliferated endometrium. These are what we have long denoted the premenstrual changes. Progestin will not cause them in an endometrium which has not previously been affected by estrin.

So much for the theoretical basis of our trials. I would remind you of a few other details. When pregnancy first begins, the anterior pituitary greatly increases its activity. So, also, as you are aware, does the corpus luteum. Recent investigations bid us now to include a third prolific source of active hormones—the growing ovum, and especially the chorionic portion of it. As soon as this begins to function (in the human being a matter of only two or three weeks after fertilization) there appear in the urine, large amounts of a hormone which has an effect on the follicles of laboratory animals similar to that of Prolan B derived from the pituitary. Directly, because of its identity with Prolan B, or indirectly by stimulating the anterior pituitary to produce Prolan B, it causes luteinization, and has been called the luteinizing hormone. It is the presence of this hormone in

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the urine, with its effect on the ovaries, which has given us our first adequate biological test for pregnancy—the Aschheim-Zondek reaction. During pregnancy, estrin too, whether from the corpus luteum or from the gestational products themselves, is excreted in the urine in large amounts. Unlike the luteinizing hormone, however, which diminishes in amount in the urine as pregnancy progresses, estrin increases, until at term there is a comparatively enormous amount of it in even the most dilute urine.

Because this increase in estrin excretion occurs while the corpus luteum of pregnancy is declining, the question arose: Could any of the disturbances peculiar to the first half of pregnancy be attributed to early failure of the corpus luteum, thus lessening the protection which progestin has been shown to have over the decidua? If the progestin effect was low it was postulated that perhaps there would be an excessive amount of estrin elaborated and excreted, for this is what occurs later in pregnancy when the corpus luteum does retrogress. If such disturbances of early pregnancy were caused by failure of the corpus luteum, perhaps exhibition of the luteinizing hormone by stopping the failure would relieve the disturbance. Determination of the urinary excretion of estrin and the clinical results of treatment would test this theory. To assay the urine for estrin, and by the variations in its quantity perhaps also to judge the effect of treatment, an easy method was evolved at the Fearing Research Laboratory[1]. I quote from their report: "It is inconvenient and often impossible to get 24-hour urine specimens on clinic and hospital patients. Inasmuch as the concentrations of different specimens vary greatly, it is also impossible to get a quantitative idea of the excretion of any substance unless one can know what part of the 24-hour output a given specimen represents. It has been shown by Folin that urinary creatinine is entirely of endogenous origin and that the amount excreted in 24 hours is a constant and in exact proportion to the weight of the individual. We, therefore, in testing for estrin, use creatinine as a gauge of the concentration in a given specimen, injecting into spayed rats the volume equivalent to a certain number of milligrams. From this and the weight of the patient the 24-hour output of estrin could be calculated, but since comparable results are all that are required, this is not necessary. We have demonstrated with urines from pregnant women that the 24-hour output of estrin of a given individual is the same (over a period of several days) whether the urine is very dilute or very concentrated, and further, that the excretion of estrin does not vary at different times of the day. Results are expressed, therefore, in terms of milligrams of creatinine equivalent to one rat unit of estrin. The urines are first made acid to litmus paper with dilute sulphuric acid. Creatinine is then measured by the simple Folin colorimetric method. The urinary estrin is determined by the Allen-Doisy method. Two rats are injected for each test, but since it is almost always necessary to repeat a number of times in order to trace down the exact quantity of urine that will give estrous smears, six or more rats are usually used on each urine specimen."

The preparation of luteinizing hormone was supplied us by Parke Davis and Company from their research department. It is derived from the urine of pregnant women, from a concentration of which it is extracted by a method evolved by Evans of the University of California. The exact endocrinological nature of the preparation is not known. For working purposes we call it the luteinizing hormone. It was known to be non-toxic, and its effect that of luteinization of the follicles of animals. It was given intramuscularly in five or ten cc. doses daily or on alternate days, for two to ten times.

I shall not detail the cases. There were four with early toxic vomiting. They were all relieved; but they were also vigorously treated in the approved clinical manner, and it was not apparent that the injections had anything to do with their improvement. I will mention their laboratory findings later. There were four patients threatening to miscarry. Two of them executed their threat and two of them did not. Surely not a brilliant therapeutic result. I shall have more to say also of their laboratory findings. One was in false labor. She was relieved. Such were the trials we suffered. Hence the title of this paper. Our attempts seemed to bear no remarkable clinical results, but the laboratory work associated with them contributed largely to a discovery which may have great clinical significance.

Bio-assay of the blood and urine of many of the women, notably those threatening to miscarry, showed an estrin content as high in the first three or four months as is considered normal for only the last third of pregnancy. Furthermore there was noted a decided decrease in the estrin content of both blood and urine four and five days after the beginning of consecutive injections of luteinizing hormone. Impressed by this latter finding the Fearing Research Laboratory then set about to determine the relationship between luteinizing hormone and the elimination of estrin, and made the important discovery that an excess of estrin in the blood is excreted only in barely perceptible amounts if there is no lutein product present; and almost ten times as much estrin is excreted if there is plenty of the progestin present. The work was done on rabbits[1]. It was shown first that in the normal rabbit's urine no estrin is discoverable in an amount of urine containing 20 mgm. of creatinine. When 600 to 700 rat

units of estrin were given to the same normal isolated doe, only 36 rat units were recovered over a four day period. When 20 cc. of the luteinizing hormone was given along with the 600-700 rat units of estrin, one-half of the estrin was recovered over a six day period—almost ten times as much as without the luteinizing hormone. But if the doe was spayed so that there was left nothing to luteinize, no more estrin was recovered in the urine if the luteinizing hormone was given than if it was not. The third experiment clarified it all for if 3 cc. of progestin, the true corpus luteum extract, was given with the estrin to spayed animals practically all the estrin was recovered in the urine. Thus it was proved that the excretion of estrin depends on the corpus luteum. This must have far-reaching clinical significance. It explains why our patients at the Lying-in Hospital excreted all their estrin, because the luteinizing hormone apparently stimulated either directly or indirectly the production of progestin as it was expected to do. It remains, of course, to be proved that an excess of estrin in the blood, due either to an overproduction or an abnormally high threshold of excretion, is responsible for any of our obstetrical evils; but we have a few, shall we say, suggestive cases.

TABLE I

ESTRIN EXCRETION BEFORE AND AFTER MONTHLY TREATMENTS WITH LUTEINIZING HORMONE DURING PREGNANCY

E. O.—THREATENED MISCARRIAGE

	Before		After	
	Urine	Blood	Urine	Blood
2 months	6 mg. C. +++ 3 mg. C. ++ 1 mg. C. —	9 c.c. ++	6 mg. C. — 3 mg. C. —	9 c.c. —
3 months	6 mg. C. +++ 3 mg. C. +++ 1 mg. C. ±		6 mg. C. ++ 3 mg. C. —	
4 months	3 mg. C. +++ 1 mg. C. + 0.5 mg. C. —		3 mg. C. ± 1 mg. C. —	
5 months	3 mg. C. +++ 1 mg. C. ++		3 mg. C. ++ 1 mg. C. +	
6 months	2 mg. C. +++ 1 mg. C. ++ 0.5 mg. C. +		2 mg. C. ++ 1 mg. C. ++ 0.5 mg. C. +	

CASE I. First seven pregnancies terminated in miscarriages at from one to five months. In her eighth pregnancy, during which she was treated by hygiene alone, she was delivered normally at seven and a half months. The baby died in a few hours of intracranial hemorrhage. Her ninth pregnancy ended in miscarriage at five months. During her tenth pregnancy she received luteinizing hormone, in her third, fourth, fifth, and sixth months. After the third month there was no more flow. Her estrin excretion record is interesting.

These were typical findings after giving luteinizing hormone—and not obtained in control cases, not so treated. Treatment of the first case was stopped after the sixth month because the decrease in estrin excretion after treatment could no longer be demonstrated. She started in labor at the end of her seventh month. One wonders whether she might have carried on if the treatment had been continued. Dr. Judson Smith allows me to discuss one of his cases.

CASE II. After one normal pregnancy in 1926 this patient had two miscarriages. During her fourth pregnancy she remained in bed for the first half and was treated with calcium and a so-called corpus luteum extract. She had frequent cramps as if on the point of miscarrying. Her fifth pregnancy ended with a miscarriage at three months. Her sixth pregnancy is the present one. Her last period was June 15. Six weeks later she was having the kind of cramps which usually foretold abortion. One injection of luteinizing hormone ended these. In the succeeding three months, August, September, and October, at intervals of about four weeks the same cramps recurred and each time have been relieved by an injection of the hormone.

This patient's excretion before and after treatment, unlike that of the others, has not been typical for she has shown greater amounts in the urine after several days of injections, while all the others have shown less, presumably indicating a lower level of estrin in the blood.

Perhaps it is not the high blood estrin that is harmful. It may be another factor which this strange preparation influences. One patient in the Lying-In Hospital group was relieved of false labor after an injection of luteinizing hormone. Dr. Smith's patient of whom I have spoken was relieved of the premonitory cramps three successive times by at least the second injection of luteinizing hormone. I am now caring for another patient who after two successive miscarriages is trying to prevent a third. One injection of the hormone at three months, was followed by cessation of terrifying cramps and slight pinkish discharge. Two prophylactic injections were given four weeks later*. All this is interesting in view of the observation

*Delivered, April 28, 1932, at term, of normal child.

TABLE II

VARIATIONS IN URINARY EXCRETION OF ESTRIN BY PATIENTS TAKING PROGYNON; POSITIVE TESTS BEING POSSIBLY INDICATIVE OF THE TIME OF OVULATION AND CORPUS-LUTEUM FORMATION—URINES TESTED IN AMOUNTS EQUIVALENT TO 10 MG. CREATININE

Patient	1 week			2 weeks		3 weeks		4 weeks		5 weeks		
C. P.	10/5/31	10/8/31	10/13/31	10/16/31	10/19 - 10/23/31	10/22/31		10/30/31		11/6/31	11/9/31	10/16/31
Sterility	—	—	+++	±	Cta.	—		—		±	+	Cta.
F. C.	9/7/31	9/11/31	9/14/31	9/18/31	9/21/31	9/25/31	9/28/31	10/2/31	10/5/31	10/9/31		
Amenorrhea Short, scanty periods	—	+	+++	++	— Cta. 1 day	—	—	—	++	+		
F. C. (Continued)	10/12/31 5 weeks	10/16/31	10/19/31 6 weeks	10/23/31	10/26/31 7 weeks	10/30/31	11/2/31 8 weeks	11/5/31	11/9/31 9 weeks	11/13/31	11/16/31 10 weeks	
	—	Not taking progynon tablets	—	—		—	±	±	+++			
	stained				Cta. 1 day						Cta.	
H. T.	7/14/31	7/18/31	7/21/31	7/25/31	7/28/31	8/1/31						
Amenorrhea	—	—	±	+++	+++	+						
C. C.	4/24/31				5/8/31		5/15/31				5/29/31	
Amenorrhea	+++				—		—				—	
H. S.	4/13/31		4/20/31		4/27/31	5/1/31			5/11/31	5/15/31	5/18/31	
Amenorrhea	—		—		—	—			—	—	After Lut. Hormone + Progynon ++	

made by Knaus[2] that the corpus luteum lessens the susceptibility of the uterine muscle to contractile stimulants. George Smith of the Fearing Research Laboratory asks: "May there not be causal relationship between the diminution of Prolan B in the urine as pregnancy nears term and the occurrence of labor? Is it progestin or some other product related to the corpus luteum which keeps the uterus desensitized to the stimulus which will at term override it?"

This paper purports to be merely a description of clinical trials. Most of them have not yet been finished, but the results so far certainly warrant our continuing. For instructive material we want cases of repeated miscarriages, for, if the habit is stopped fairly consistently, we may assume that the luteinizing hormone has something to do with it. It is of significance that in three cases of threatened miscarriage which were studied, and which were treated merely by sedatives and rest in bed, no decrease in estrin content of the blood or urine could be demonstrated, whereas in all but one of ten cases treated with the hormone such a decrease was convincingly shown. It is hoped that somebody will try to determine in rat units the urinary excretion of estrin throughout the period of gestation. A dependable standard would help us in deciding whether an excess were present.

These newer endocrine products of proved potency have also been tried in other than obstetrical cases. Estrin has been supplied to us by Parke Davis and Company in the form of Theelin, which comes in ampules of solution, and by Schering and Glatz in the form of Progynon, which is marketed both in pill form and in solution. In a few cases we used a very strong but crude extract made in the Fearing Laboratory and put in capsules. Estrin in any of its forms can be given by mouth, but if so the comparable dose must be at least three times that given intramuscularly.

While my description of the Smiths' conception of the rôle of the corpus luteum in the excretion of estrin is fresh in your minds, consider the following useful diagnostic procedure suggested in their paper in the investigation or even the treatment of certain sterility cases. If estrin is given by mouth daily throughout the menstrual cycle and the urine is examined twice a week, a sudden and great increase in the estrin content of the urine will show whether and when the corpus luteum is functioning and thus whether and when ovulation probably occurred. The practical significance of this, especially in cases of amenorrhea, I need not emphasize.

Estrin was marketed many months before the other hormones were available for trials, and being known as the female sex hormone it naturally was exhibited to all kinds of cases. Especially was it given optimistically to cases of amenorrhea. Almost consistently, of course, it failed to produce results; for few cases of amenorrhea are due solely to deficiency of the follicular hormone. Progestin, the corpus luteum hormone, is the one which, it has been said, "touches off the endometrium which has first been primed" by estrin, the follicular hormone. Both are essential. Progestin, though, has not yet been obtained in a form suitable for human consumption, either by injection or ingestion. The luteinizing hormone, however, if the ovary is at all sensitive, will evoke the progestin effect, perhaps by stimulating the formation of its source, the yellow body; and so we have tried giving both estrin and the luteinizing hormone to amenorrheic patients. I shall mention briefly a few suggestive cases. Some of them were given thyroid in small doses with the sanction of respectable custom. There can be no doubt that the thyroid is related to the sex apparatus but how and how intimately no one has informed us. Of ten current cases with amenorrhea of at least four months' duration five were satisfactorily relieved, two more were definitely improved and with three treatment failed.

CASE III. Oligomenorrhea and long skips.
Folliculin capsules and thyroid for six weeks.
No flow. A failure.

CASE IV. Amenorrhea during 1929.
Luteinizing hormone and folliculin in various forms during 1930.
Two periods at 6 month intervals. Inconclusive.

SUCCESSFUL TREATMENT

CASE V. Seen in May, 1931, complaining of amenorrhea for seven months.
B. M. R. —2 per cent.
June 19 to July 3. Progynon, three tablets (90 units) t.i.d.
Cta. July 3. (Treatment omitted until July 24.)
July 24-August 1. (No further treatment.)
Cta. in August, September, and October.

CASE VI. April, 1931, skips four months at a time.
Folliculin capsules in April.
Profuse cta. in May.
No treatment in May. No cta. in June.
No treatment in June. No cta. in July.
Progynon, and Prolan B in July—normal cta. in August.
No treatment in August—Molimina in September.

CASE VII. March 1931, Amenorrhea for one year. Obese.
Sterile nine years. B. M. R. —4 per cent. Folliculin capsules and thyroid for three weeks from March 20 to April 10. April 23 few blood stains.

CASE VIII. November, 1930. No cta. for two years. From November 1 until May 1, given various preparations: progynon, 90 units t.i.d.; theelin and luteinizing hormone; folliculin alone. Good cta. in May, June, July, and August.

It does seem that there is light and hope ahead for those unfortunates who complain of the lack of that which those who have it call the "curse".

Naturally we tried to relieve the symptoms of the menopause, especially hot flashes, though we do not know how they are brought about, and I shall not abuse your patience with footless theorizing. We have used various preparations of estrin. We have had some success. Practically all patients get appreciable relief and some, a sudden and complete cessation of attacks. Such patients, however, are notoriously subject to psychic influence. It is interesting and provoking that one patient aged 29 who was suffering from four to ten attacks a day, a year and a half after a radium menopause was promptly and completely relieved by five doses of luteinizing hormone, and had her first period ten days after the last injection. Another patient aged 53, whose ovaries were atrophied got no relief from luteinizing hormone, as might be expected.

The most constant and most encouraging therapeutic success with the newer preparations has been with the luteinizing hormone when used in cases of menstrual frequency, of menorrhagia, and of functional bleeding. Of fifteen

MENORRHAGIA

Symptoms	Treatment	Results
CASE IX		
Cta. every 2-3 weeks.	Two injections of Luteinizing hormone, 5 cc. in June. Two injections of Luteinizing hormone, 5 cc. in July.	Four week intervals from June cta. through September.
CASE X		
Profuse flow at cta. lasting 10-15 days. D. and C. without improvement of cta. (Endometrial Dysplasia.)	Lut. Horm., 5 doses, 2 cc. a day in June. Lut. Horm., 3 doses, 2 cc. a day in July.	September cta. normal. October cta. profuse.
CASE XI		
In June had been flowing for 20 days, 2 n.p.d.	Lut. Horm., 5 cc., alternate days in June.	Flow stopped after 2nd injection. Normal cta. since.
CASE XII		
Excessive flow at cta.	Ten cc. Lut. Horm. daily during March cta. for 6 days. Lut. Horm. 10 cc. daily during April cta. for 5 days.	Cta. of March—9 n.p.d. to 3 n.p.d. April cta. only 1 day. May cta. delayed 15 d. Hot flashes 3 per day during delay. Flow later came as profuse as ever. Had hysterectomy outside.
CASE XIII		
Flow 8-12 days every 2-3 weeks for 7 months.	Lut. Horm., 5 cc. alternate days for five doses in October.	Succeeding cta. was 3 days and mere stain for 3 more.
CASE XIV		
Daily flowing for 1 year. Operation: Endometrial polyp. Marked endometrial dysplasia. Operation only relieving for 4 months, then cta. every 2 weeks.	Lut. Horm. twice a week in January. Lut. Horm. every other day starting June 22 for 7 doses. Lut. Horm. started 9/25.	Delayed cta. for 31 days until Feb. 6. March and April O.K. No cta. in May. Flow began June 8, continued every day until June 22. Flow diminished to 1 n.p.d. during week of treatment. No cta. in July. August not recorded. Cta. began 9/16. Still flowing 9/25. Flow diminished gradually during 10 days of treatment.
CASE XV		
Flows for 8 days every 10-14 days, for last 3 months. Stopped week ago.	May 4, Lut. Horm., 10 cc. every other day for 5 doses. June 1, Lut. Horm., 5 cc. every other day for 5 doses. No treatment: July, September, October. 9/18 B.M.R. +53%, Pulse 120. 10/2 B.M.R. +88%, Pulse 120. 10/16 Lugols 10 gtt. t.i.d.	Cta. May 15, 5 days. Cta. June 14, 6 days. Cta. July 10, increased flow. Again Aug. 1, 15, and Sept. 12. October 7, 7 days, 4 n.p.d.
CASE XVI		
Cta. 7-10 days, 9 n.p.d.	Lut. Horm., 2 cc., four injections.	Did not help cta. Operated and relieved. Endometrial Dysplasia and Chr. Endometritis.

CASE XVII		
Flows 11-12 days every 2 weeks.	Lut. Horm., 4 injections, 4 cc.	Patient continued heavy flow for 2 weeks.
CASE XVIII		
Red flow for month. 2-4 n.p.d.	Lut. Horm., 5 cc., 3 injections each day.	One napkin per day of pink discharge.
CASE XIX		
Flows every week for four months. Ut. third degree retroversion.	Lut. Horm., 10 cc., 4 injections.	Flow stopped.
CASE XX		
Profuse, painful flow for 2-3 weeks for 5 months. (9 days with clots.)	Lut. Horm., 5 doses.	Cta. 2 days later. Normal flow for 4 days, 4 n.p.d.
CASE XXI		
Flows every 17-21 days, 7d., 2 n.p.d.	Two injections Lut. Hormone.	No relief. Nervousness and depression increased since taking Lut. Horm.
CASE XXII		
Profuse flow for 5 months every 14-20 days.	Two injections of Lut. Horm. at 2 week intervals.	Normal cta. after first injection. Normal cta. following.
CASE XXIII		
Staining between cta. (Path. Exam.—gland hypertrophy.)	Lut. Horm. March 14-20.	No flow.
	Staining recurred daily after cta. of April 27 until cta. of May 24.	
	Lut. Horm. June 8-26 on alternate days.	No staining. Followed by normal cta. Flowed only 1 day between.

cases which I have treated and on whom I have good "follow-up" only two have failed to respond satisfactorily. Many of these patients have been curetted in the past, and the usual hyperplastic endometrium of the Schroeder-Shaw group 1, found. Injections of from two to ten cc. were given in alternate buttocks on alternate days for five or seven doses. After most injections the patients suffer moderate malaise, often with chills or nausea lasting several hours. In most cases prompt improvement is noticed, and in a few, complete cessation of the flow. If the condition has been of long standing, a second, or even third series of treatments is given in succeeding months. Patients have remained symptom-free for as long as three months after treatment has stopped. It remains to be seen how long it will be before the underlying endocrine imbalance again asserts itself. It is hard to believe that such cures will be permanent.

SUMMARY AND CONCLUSIONS

The current conception of the hormones from the anterior pituitary gland and the ovary, as they are thought to be concerned with menstruation and pregnancy has been outlined. Preparations of some of these hormones or their excretory derivatives as they appear in the urine have been mentioned and a preliminary report made of their clinical use. It may be concluded from this report that the therapeutic value of the ovarian hormone at least in the amount which can be given to and paid for by patients is very limited; and that the effect of much larger doses is still undetermined. So far experience with these and other endocrine products gives little assurance that the effect of the hormone on the genital apparatus of women will be the same as on the genital apparatus of rats and rabbits.

It has been shown that the so-called luteinizing hormone will relieve certain cases of atypical uterine bleeding. It will certainly not relieve all, and probably will permanently cure only a few. For carefully selected and properly diagnosed cases, it offers a very superior method of treatment.

It is to be hoped that all practitioners will guard against the unwarranted optimism which blatant advertising of these newer preparations engenders. This iniquitous deception of doctors is especially to be deplored if it tempts them to forget that bleeding from the vagina can be and often is caused, not by simple endocrine disturbances, but by cancer which is a mortal disease if not diagnosed early, or may become such during a time-consuming series of useless but expensive injections of a mysterious endocrine excreted in the urine.

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HOUSE BILL 106

Discussion* By Stephen Rushmore, M.D.†

HOUSE Bill 106 has been presented in accordance with Chapter 112, Sec. 4 and Chapter 30, Section 33 of the General Laws, having been drafted by Counsel for the House, and is part of the Annual Report of the Board of Registration in Medicine. By vote of the Board, the Secretary has been duly authorized to make representations for the Board, and much, but not all, of what I shall say is an amplification of material already incorporated in the annual report of the Board but not yet published.

The object of the bill is to give increased protection to the health of the people of Massachusetts, by raising the qualifications for the practice of medicine.

The procedure suggested to accomplish this object is to give to the Board of Registration in Medicine, power of approval of medical schools from which it receives candidates for examination.

The provisions of the bill are three: (1) giving the Board power of approval of medical schools from which it accepts candidates for examination; (2) removing from the statute the condition of qualification of a medical school that it shall give a full four years' course of instruction of not less than thirty-six weeks in each year; and (3) exempting from the new requirement of the statute candidates who at the time of passage of the bill, are students in a medical school now fulfilling the requirements of the statute.

Of this third provision, little need be said. It is only fair that the change in the law should not affect those who are actually enrolled in a medical school at the time of the passage of the bill.

Of the second provision it may be said that it serves no useful purpose. It does not protect against graduates of a diploma mill, and if this kind of requirement is wise it should be made of the student and not of the school. If required of the student, the school will have to give it. If required of the school, the student need not take it. Furthermore, such requirement could be included in the more comprehensive term "approved by the Board," if it is found to conform to general usage.

Recently this qualification of a "full four years course of instruction of not less than thirty-six weeks in each year" has attracted a good deal of attention, and the Attorney General has ruled that the meaning of the statute is thirty-six weeks of "actual instruction, excluding vacation periods intervening" between the date of the opening of the school in the autumn and the date of commencement in the spring.

In accordance with this recent interpretation, if one consults the catalogues of medical schools in the United States, which are not always explicit as to dates of actual instruction, one finds that the graduates of almost none of the Class A schools are eligible for examination in Massachusetts. That is, almost the only candidates who are eligible in Massachusetts for examination are refused admission to examination in every other jurisdiction in the United States.

Evidently the situation in medical education has changed since this qualification was introduced into the law, and there is exemplified here the disadvantage of incorporating in the statute specific educational requirements for medical schools. Such specific requirements are necessary in wise and adequate administration but they should be by board rulings, which can be modified to suit changing conditions, and not by statute which is less flexible. Some action is now necessary so that there may be again admitted to practice in Massachusetts, graduates of the better medical schools.

It is the first provision, "approved by the Board", that is the most important and to which especially, therefore, I direct your attention. The first consideration involved in the proposed change is the need for raising the qualifications for the practice of medicine in Massachusetts. To some persons the fact that the qualifications are lower in Massachusetts than in any other State is a sufficient reason why they should be raised at least to the level of other states. On this point the testimony of lay persons interested in the health of the people of Massachusetts should carry some weight. To persons who are familiar with the promptitude and celerity of Congressional action, the fact that the Congress of the United States enacted a similar statute for the District of Columbia four years ago, two years after similar action by the latest of the states, suggests that it would not be premature for House Bill 106 to become law now in Massachusetts. The Board would not stress these arguments and additional evidence will be contributed as the argument is developed.

The next consideration involved in such a proposed change in the statute is its constitutionality. The Board has gone into this matter and has found that already there are so many occasions when this question has been decided by courts in other states that the Board has had no hesitation in asking that the change be made in the Massachusetts law. In any case, however, no more time need be devoted to this point now, for if there is any doubt, judicial opinion can be obtained by the Legislature.

The third consideration is why this power of approval of medical schools should be specifically conferred by the statute, that is, why this particular procedure should be adopted.

*Before the Committee on Public Health of the Massachusetts Legislature, February 14, 1933.

†Rushmore—Secretary, Board of Registration in Medicine, Massachusetts. For record and address of author see "This Week's Issue," page 391.

This can best be shown by a comparison of the qualifications for practice in Massachusetts with those of other states.

The present qualifications for practice in Massachusetts are that the candidate for licensure must

(a) be 21 or over;
(b) be of good moral character;
(c) possess the educational qualifications required for graduation from a public high school;
(d) have received the degree of doctor of medicine, or its equivalent, either from a legally chartered medical school having the power to confer degrees in medicine which gives a full four years' course of instruction of not less than thirty-six weeks in each year, or from any legally chartered medical school having such power, if such applicant was on March 10, 1917, a matriculant thereof;
(e) be examined, and if found qualified, be registered. The "examination . . . shall be sufficiently thorough to test the applicant's fitness to practice medicine."

It is the opinion of the Board that no practicable adequate examinational test can be devised and that therefore such examinational tests as are employed must be supplementary to the fulfillment of other requirements if this reasonable demand by the statute for "fitness" is to be met. That the examinational test is not adequate the statute already acknowledges by requiring that conditions (a) (b) (c) (d) as noted above be fulfilled.

The Board therefore asks that another qualification be introduced preliminary to examination, namely that the schools from which candidates are accepted must meet the approval of the Board.

The qualifications for the practice of medicine in other states cannot be determined simply by an examination of the statutes, as in addition to requirements specifically stated in some statutes, there is conferred on the Board of Registration by the statutes of every jurisdiction in the United States (federal and state, except Massachusetts) some discretionary power of approval of medical schools. Thus the statutory requirements are supplemented by Board Rulings.

The result is that in every jurisdiction except Massachusetts, two years of premedical education of acceptable collegiate grade are required and in the medical school itself, the character of the instruction must meet certain reasonably adequate minimum standards.

The significance of these statutes in other jurisdictions is that the opinion of the Massachusetts Board with reference to the inadequacy of the examinational test is confirmed. The latest laws are those for the District of Columbia, enacted in 1929, and for Colorado in 1927, in both of which the words "approved" by the Board appear.

Therefore the reason that the Board asks that this specific method be adopted is because the experience of other jurisdictions has shown it to be the best procedure.

You will naturally ask what are these schools doing that they are not worthy of approval, and what direct evidence the Board has that they are doing anything that they ought not to do. This is indeed the crux of the situation; the Board has no direct evidence that there is any school which should not be approved, and it is because it cannot get such evidence under the statute, that it asks the power to find out for itself what these schools are really doing and to determine for itself whether the ill-repute in which some of these schools stand, is justified. The only direct evidence in the possession of the Board indicates merely that at least some of these schools should be investigated.

About a year ago, the Board made representations to a legislative committee concerning a certain school in Massachusetts. Reference was made to two documents in the office of the Attorney General, which have never been made public. The fact that the Attorney General has never taken any action means, of course, that he found no evidence of criminal activity on the part of the school, but if this committee is interested in reading these reports, it will see what a travesty on medical education was given in that school at the time the reports were made.

At the time reference was made to the reports a year ago, a representative of that school expressed to the Committee the opinion that the reports were "ancient history". His acknowledgment that they were history, conceded every contention of the Board at that time, because what the Board asked was that, before an extension of power be given to that school, the school should be investigated by the legislature to determine whether the same procedures, the same methods, the same travesty on medical education reported earlier was still to be found in that as in some other schools.

The evidence that the Board submits therefore is indirect evidence of unworthiness; some of it that which competent evaluating bodies say of these unapproved schools; some of it matters of record with the Board itself.

May I point out that in this matter of approval of medical schools, three separate and distinct questions are involved. The first is, should the qualifications for the practice of medicine in Massachusetts be raised? The second is whether the Board should have power of approval of medical schools; the third is whether any specific school should be approved. These questions, though related, are not identical, and the evidence submitted by the Board bears directly on the first and second which are really the questions at issue in this bill; and only indirectly on the third, which constitutes part of the background against which the second question must be viewed. Little will be said of in-

dividual schools and only two will be mentioned by name for a special reason to be noted later.

To take up specific evidence then, in the first place, in every jurisdiction in the United States, including Alaska, the District of Columbia, Hawaii, Panama and the Canal Zone, and excluding Massachusetts, the Board of Registration in Medicine (or corresponding administrative body) has discretionary power of approval of the medical schools from which it accepts candidates for examination. The Board submits as Exhibit A* extracts from these various statutes. One significance of these statutes is that in every jurisdiction, except Massachusetts, it is recognized by statute that there exist medical schools not worthy of approval, and that such schools constitute a menace to the health of the people.

The fact that these statutes have been enacted in every other jurisdiction in the United States, is of course no reason why such statute should be enacted in Massachusetts. On the other hand, enactment elsewhere is no reason why Massachusetts should not take the same steps that others have taken before her. It was in 1929, that the law was changed in the District of Columbia, giving power of approval to the Board.

In the second place, the legislature of Massachusetts has recognized by the statutes which it has enacted for certain Boards of Registration that there are schools unworthy of approval. Under the Division of Registration there are ten Boards of Registration: Medicine, Chiropody, Nursing, Dentistry, Pharmacy, Embalming, Veterinary Medicine, Optometry, Barbering and Certified Accounting. Four of these have nothing to do with the bodies of persons who are alive; Pharmacy, Veterinary Medicine, Embalming and Accounting. Two of them accept candidates for examination after preparation by apprenticeship or by going to a school, as Optometry and Barbering. Four accept candidates only after schooling. But every Board that accepts candidates from a school, except Medicine, has some discretionary power of approval of the school. The board submits as Exhibit B†, extracts from the statutes governing these Boards in Massachusetts.

*Exhibit A refers to the laws of all the states and would not be of general interest.

EXHIBIT C*

	Number examined	Number rejected	Percentage rejected
Class A schools	210	10	4
Foreign schools	8	3	37½
Eclectic schools	41	25	61
Osteopathic schools	53	37	69
Unclassified schools	31	27	81

*See explanation in text.

The Board, then, asks that it be given power of approval, already conferred by statute on every Board of Registration in Medicine outside of Massachusetts, and in Massachusetts, such power is already given to every other Board of Registration which accepts candidates from a school. It asks, not for complete equality with other Boards, but that it may be given power commensurate with its importance in protecting the welfare of the public.

It has been said by some evaluating bodies that these "unapproved" schools are not giving reasonably good medical education. On this point the Board submits evidence from its own experience with the candidates, Exhibit C, the Report of the Board for the year 1931 in which on page 5, Table V is found the statement that of thirty-one candidates from so-called "Un-

†Not of general interest.

EXHIBIT D*

	"Not Approved" Exam.	Failed	Percentage	"Approved" Exam.	Failed	"Approved" Exam.	Failed	"Approved" Exam.	Failed
1921	32	16	50	10	0	39	0	73	6
1922	37	15	40	19	0	39	0	65	3
1923	29	14	48	13	0	42	0	52	3
1924	31	15	48	18	1	36	0	87	3
1925	15	10	66⅔	16	0	33	0	69	1
1926	32	18	56	30	0	44	0	78	6
1927	16	11	68	21	1	47	0	68	4
1928	31	17	55	31	1	40	0	71	2
1929	38	24	63	16	0	56	0	61	1
1930	48	18	38	20	0	43	0	58	0
Total	309	158		194	3	419	0	682	29
Per cent failed			50%		1½%		0%		4¼%

*See explanation in text.

EXHIBIT E*

COMPLAINTS MADE TO THE BOARD AGAINST PHYSICIANS SINCE JULY, 1925

	Approved	Not Approved	Years of Practice	Not Graduates	Before 1911
Complaints	144	77	3	1	26
Physicians in Practice	5,288	540	117	69	407
Percentage	2¾	14¼	2⅔	1½	6⅓

*See explanation in text.

classified'' schools, twenty-seven or eighty-one per cent failed on first examination. This figure should be compared with the record in the same examination of graduates of so-called ''Class A'' schools. Of two hundred and ten examined, ten failed, a percentage of four which is about the average number of failures in states where only graduates of Class A schools are admitted to examination. It is clear that any school or group of schools of which 81% of the graduates fail in State Board examination, is not giving a reasonably good medical education.

The Board submits as Exhibit D, a statistical compilation made last year in which the record of the graduates of one of the non-approved schools in this state over a period of ten years was compared with three Class A schools also in this state. The average of failures in the poorest showing of the Class A schools was less than five per cent which, as I have said is about the average percentage of failures in other states. That is, this particular non-approved school, has a percentage of failures more than ten times as high as the average for the Class A school showing the greatest number of failures and over twenty times as great as the average for the three Class A schools in Massachusetts.

The Board submits as Exhibit E, a statistical compilation showing the number of complaints against registered physicians which have been made to the Board since July, 1925. This date has been selected because the introduction of a new method of keeping the records since that time has made the compilation of statistics easier. The complaints have been made against five kinds of physicians: graduates of approved schools 144; graduates of non-approved schools 77; physicians licensed on years of practice, when the law went into effect in 1894, 3; not graduates of a medical school, 1; graduates before 1911 of schools which were ''not approved'' later, 26. It was about 1911 that the classification of schools first became effective. Comparing these figures with the number of physicians in each group gives a percentage of 2¾ for the first group, 14¼ for the second group, and 6 1/3 for the fifth group. The third and fourth groups are too small to support any conclusions. From the first and second groups it is seen that there have been relatively over five times as many complaints against graduates of non-approved schools as against graduates of approved schools.

These figures from the records of the Board suggest strongly that the medical education given in these schools is of a poor grade, and that the selection of the candidates suitable for graduation is defective, if so few pass the examination and so many have complaints made against them.

Recently there has come to the attention of the Board another possible source of danger to the health of the citizens of Massachusetts. It is from graduates of foreign medical schools, and, since this has to do with a movement in process of development, I would like to lay before this Committee the information which has come to the Board.

It is well known that there are not enough medical schools in this country to enroll all the candidates who desire to study medicine and who have fulfilled all the formal requirements for admission to approved medical schools. Of late, therefore, many of these students have gone abroad and it has been estimated that this year there are fifteen hundred Americans enrolled in European medical schools. Most of these candidates have been refused admission to some approved medical school in this country. The procedure for admission here is, in general, to accept up to the capacity of the school the best qualified candidates who meet the formal requirements. There is a considerable number left over, some qualified but many not qualified because of low grade. There is evident then a tremendous demand for medical education in this country. Whether there is a corresponding demand for doctors after graduation is another question. Numerical comparisons with other countries which have good medical service, suggest that there are too many physicians in the United States and especially in Massachusetts, yet few persons who are ill, at least, would complain that physicians know too much or are too well trained.

These American students now in foreign medical schools may constitute the new danger to the United States to which I have referred. How great the danger may be, is not yet clear, for exact information as to the situation is not yet available. Warnings have already been sent out by responsible persons that the danger may be great. Apparently the standards in some European universities for (to them) foreign students are being lowered. Economic factors may play a part in this movement. Such ''foreigners'' who receive the medical degree will not be allowed to register for practice in the country in which the degree is conferred, and they will return to the United States. They will be without qualification by hospital service, internship, examination for ''license'' and other privileges granted by these colleges to their native students. We may then expect a flood of unqualified physicians from this source. If these fears are confirmed, and this is so recent a development that its force cannot yet be estimated, every state in the Union except Massachusetts can protect itself, for these schools with low standards can be declared ''not approved''. Massachusetts will be perfectly helpless without this provision in the statute, and it will be ''foreign dumping'' on Massachusetts with a vengeance.

There are two schools in this state which I would like to compare and contrast briefly, and I shall do this and mention them by name because they are named together in the statute. In chapter 321, Acts of the General Court of 1851, there appears the following law, entitled ''An Act to Amend the Charter of the Worcester Medical Institution,''

"Be it enacted etc.,

Sec. 1. The Trustees, together, with the regularly constituted officers of the Worcester Medical Institution in conferring the degree of doctor in medicine, are hereby restricted to the same rules and regulations which are adopted and required in conferring the same degree, by the University of Cambridge, and the Berkshire Medical Institution; provided that the title of the degree shall be designated by some appellation to distinguish it from those of graduates of other modes of practice."

Whether this provision of the Charter of the Worcester Medical Institution is now fulfilled in all respects, and whether, in conferring the degree of doctor in medicine, the trustees, together with the regularly constituted officers of the Middlesex College of Medicine and Surgery are actually restricted to the same rules and regulations, which are adopted and required in conferring the same degree by the University of Cambridge, the Board does not know, but there has come to its attention a custom of Middlesex College of Medicine and Surgery which is unique among medical institutions, so far as the Board can learn. Of what nature this custom is, this Committee can judge for itself when the facts are laid before it. In the catalogue for 1932-1933 of the Middlesex College of Medicine and Surgery, the acquired name of the Worcester Medical Institution, is the statement on page 41 that one of the conditions under which the diploma of the school is given and the degree of doctor of medicine is conferred, "Requirements for Graduation," is the completion of one year's internship. At the completion of the internship the diploma is given, but it is dated back, to a time, perhaps before the internship is even entered upon. The situation was at first a little puzzling to the Board, because it has been in the habit of stating on its license, that John Doe, a graduate of Roe University in a certain year, has been licensed by the Board and before granting the license, the date of graduation has been verified by the school. If the Board counted noses it would decide in favor of the date on the diploma signed by the President and the Secretary, as showing when the candidate graduated and against the Registrar who signed the verification, on the basis of two against one, but after personal representations by the Registrar the Board has decided in his favor. This dating back of a diploma to a time a year before the fulfillment of the conditions under which the diploma is granted, is not the practice at Harvard, nor of any other educational institution besides Middlesex so far as the Board can learn, and because of such dating back, the diploma is not a true statement of fact. Perhaps the statement on page 19 of the Bulletin for the school for 1932-33, that "the provisions of this catalog are not intended as a basis for contract between the students and the schools" voids any obligation in this matter on the part of the medical school.

The Board has selected the word "approved" as most exactly and appropriately describing the power for which it asks. In some other jurisdictions other words are used. The school must be "satisfactory", "adequate", "reputable" (with or without definition), "in good standing", "recognized". The trend in the more recent legislation has been to simplify and reduce the statutory requirements which must be met by the school and to comprehend them under the term "approved", leaving it to the Board to adjust the specific requirements so that they may meet the changing needs of medical practice. The most recent legislation is for the District of Columbia in 1929, in which the word "approved" is used and next to that for Colorado in 1927, in which the same word is employed.

The danger of conferring this power on an administrative board must be faced. In the experience of other states, however, no abuse seems to have developed, nor in the case of other Boards in this State. We in Massachusetts have confidence that the Governor and the Council, in the future as in the past, will on the whole appoint and confirm, reasonably intelligent and just men to the Board; and if, in the opinion of any school, the Board should be arbitrary or unjust, redress can be had by court action.

In some states the word "reputable" is used. The Board prefers "approved" because it gives more opportunity to a school to improve. If a school is declared "not reputable" it may take it many years to build up a good reputation. If a school is "not approved", it may become "approved" as certain conditions are fulfilled, perhaps in a few months or a year or two. So far as unapproved schools are concerned, the purpose of the bill is to have them improved until they can be approved as giving reasonably good medical education.

There is another reason why the qualifications for the practice of medicine in Massachusetts should be raised. It arises from the nature of the practice of medicine and from the relation between the physician and the patient. When the patient places himself in the care of the physician, a relational obligation arises, a trusteeship is created. Sometimes it is said that the physician sells and the patient buys services, and the exchange is compared with the process of trade. It is a false analogy, it is not a trade. There is involved a professional obligation; the patient puts himself in a very real sense in the power of the physician, for better, for worse, and the Board knows through its experience, as no group of laymen can know, how often it is for worse and not for better. There is involved a trusteeship, a sacred trust, and what the Board asks is that the formal qualifications for those who seek to enter this position of trust shall be raised still higher than in the past, so that physicians may be more nearly fitted to carry well the responsibilities of their high calling.

MEDICAL PROGRESS

PROGRESS IN DERMATOLOGY

BY HARVEY P. TOWLE, M.D.,* AND JACOB GRUND, M.D.*

THE past year has seen a voluminous literature on dermatologic subjects. From this great mass your reviewers have culled such articles as seemed to them most worthy of notice, because they either presented new facts or a new viewpoint of old facts.

Three topics seemed to attract particular attention, if one may judge by comparative numbers; the fungus diseases, popularly called without much discrimination ringworm diseases, allergy and gold therapy. To these we have applied the same criteria as to the others, something new in fact or in viewpoint.

FUNGUS DISEASE

As not all fungus diseases are due to the trichophyton, the organism of ringworm, but as all trichophytons are fungi, we have chosen the broader title for this section. The reader will find additional reason for this when he notes how wide the field and how diverse the diseases which are included under the title Fungus as compared with the very restricted range of the trichophyton.

For years now we have been familiar with the diagnostic method of inoculating a suspected subject with an extract made from the virus of the suspected disease. If a reaction occurs we say that the test is positive and by so much indicates that the patient actually has the disease under suspicion. In like manner, Williams and Carpenter[1] have attempted to detect the ringworm disease with a trichophytin, an extract of the trichophyton which causes ringworm. They gave trichophytin intradermally to seventy cases in which a clinical diagnosis of tinea of the smooth skin had been made. As a control group, they used forty nontineal cases, twenty-nine of which were cases of pityriasis rosea.

Their final conclusions may be summarized thus: that intradermal tests with trichophytin are an aid in the diagnosis of tinea of the smooth skin; that positive reactions encountered in cases of pityriasis rosea are due not to the pityriasis but to the tineal infection of the feet which is always present when the test is positive; that therefore pityriasis rosea is not a tineal affection.

Levin and Silvers[2] offer a "possible explanation of the localization of ringworm infection between the toes". They advance the theory that the answer lies in the anatomy of the toes and in the chemical reaction of the skin. They take as their premises the admitted fact that heat, moisture and trauma predispose to the growth of tinea. They argue that the shoe pressing upon the toenail keeps the skin of the interspaces in a state of constant irritation thereby predisposing the skin of the interspaces to infection. Moreover, they say, the skin in the interspaces is more alkaline than the skin elsewhere. Acidity inhibits infection. Alkalinity favors it. Evaporation of moisture reduces the acidity of the part. Together these two factors give the interdigital spaces a peculiar predisposition to tineal infection.

R. W. Benham's[3] studies on the monilia give point to the note, made above, that there are more fungi which are parasitic for man than the ringworm fungus. By means of morphologic and agglutination procedures he has sought to identify the organisms found in thrush, erosio interdigitalis, chronic paronychia, perlèche and certain types of superficial glossitis. The organism of thrush, monilia albicans, is, he says, a well-defined species. He suggests that the organisms of the other diseases mentioned belong to the same species. He tested 30 strains of monilia for virulence. Nineteen were identified as monilia albicans and were pathogenic for rabbits. Eleven other strains were nonvirulent.

Robinson and Moss[4] have made a study of superficial glossitis and of perlèche which almost parallels Benham's[3] investigations. Their series comprises 22 cases of lesions at the corners of the mouth in adults (perlèche). Six of the cases were complicated by superficial glossitis and eight by erosio interdigitalis. In 13 of the 22 cases of perlèche monilia albicans was recovered and also from a certain number of the complicating lesions. Notwithstanding the fact that these yeast-like organisms were recovered from the lesions under investigation, the investigators nevertheless are in doubt as to whether they are causative.

Frank[5] presents a much more convincing report than either Benham[3] or Robinson and Moss[4] even though his series of cases was small. Frank studied but four cases of perlèche. From these he recovered the monilia albicans. With monilia from one of the cases, he reproduced in the corner of his own mouth a lesion which was clinically identical with the mother lesion. As a control study, he investigated 100 normal mouths and 19 times found yeast organisms present, the monilia in 11%, the endomyces in 6% and the cryptococcus in 2%—of the total 100.

Hopkins[6] commenting on the situation in re-

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gard to the monilia and the diseases in which they are found, says that there is still great uncertainty, for the reason that we lack knowledge of these yeast-like forms. Many species are parasitic for man. Some species are pathogenic for animals. Some are not. At present we have, he says, no means of identifying these varying forms and, moreover, we cannot agree as to what they shall be called. Observations reported indicate that the monilia albicans is found regularly in erosio interdigitalis, mycotic paronychia, perlèche and the glossitis associated with it but, except for the monilia albicans, he has as yet found no evidence that any other species is pathogenic for man.

ALLERGY DUE TO THE TRICHOPHYTON

Much thought and study are being given to certain phenomena disseminated over various regions of the body which are associated with demonstrated lesions of trichophytosis.

Goldsmith[7] reports a case of erythema multiforme which apparently was of trichophytic origin. A woman, working with laboratory mice, developed an acute inflammation of the right fourth finger. Subsequently vesicles appeared on the interdigital space of the affected finger. Twelve days later an eruption, typical of erythema multiforme, appeared on the hands, elbows and feet. The normal skin proved to be very sensitive to trichophytin. Goldsmith believes the erythema multiforme was caused by the trichophyton or its endotoxin being carried by the blood stream to a sensitized skin.

Peck and Salomon[8] report a case of eczema, in an infant, which they believe was an allergic manifestation due to the trichophyton. The eczema was generalized. Mingled with the eczematous lesions were sharply defined vesicular lesions on the left sole and foot. Clinically, these lesions were characteristic of epidermophytosis. Moreover the trichophyton and the microscopic tests both gave positive results. No fungi could be demonstrated from other lesions. Whitefield's ointment was applied to the positive lesions but to no others. The eczematous eruption was totally untreated. Nevertheless, two weeks later all the lesions had disappeared. Therefore, the reporters argued, the eczema was an allergic phenomenon.

White and Taub[9] were so impressed by a statement of Dr. C. M. Williams that certain eruptions on the hands were mycotoxic manifestations of distant active fungus foci that they have given the subject special study. They came to the conclusion that in many affections of the hands, especially those in which no fungi can be demonstrated, the fungus is only a predisposing factor, inducing what amounts to a hyperallergy. To illustrate, they cite the case of a woman who had had an eruption on the right foot for six years. In the seventh year she had an acute flare-up on the hands of a diffuse inflammation with considerable edema of the hands and forearms. The diagnosis of a fungus infection was not satisfactory, so investigation was started in the course of which it was discovered that the woman was susceptible to cottonseed oil. It was learned that just before each flare-up she had mixed cottonseed oil into a cake. The elimination of cottonseed oil cured the eruption. In another case of fungus infection a diffuse eruption over the extremities was found to be due to oatmeal. Another was due to buckwheat and a fourth to silk apparel. Therefore White and Taub are convinced that a fungus infection may so hypersensitize the skin at a distance that the skin reacts to non-allied substance, or as they express it, to things inanimate as well as animate.

According to Hopkins[6] the monilia also may occasionally cause allergic sensitizations and manifestations. Monilia albicans occurs abundantly in the mouths and in the stools of those having a monilia affection of the skin. Hopkins' facts all point to the conclusion that in sensitized persons the skin manifestations are the result of the absorption of substances produced either in the alimentary tract or in some other focus.

Strickler, Ozellers and Zaletel[10], like White and Taub[9], believe that trichophytosis of the feet is capable of sensitizing the skin at a distance thereby favoring the development of secondary affections. They regard the lesions of epidermophytosis of the feet as local foci from which, under certain conditions an absorption of toxic substances can take place. These toxic substances may be the fungus itself, its metabolic products or both. Moreover, these substances are dermatotropic and can sensitize the skin. As a result of their action they play a part in the production of various secondary (mycid) eruptions which, as we have seen, White and Taub[9] say may be entirely nonfungous. From this conclusion is drawn a second that the treatment of these cases with a primary focus and secondary nonspecific manifestations should include desensitization of the skin by trichophytin.

Some time ago Loomis[11] wrote extolling the virtues of a mixture of thymol and oil of cinnamon in the treatment of ringworm. Further trial has failed to bear out the early promise of this method.

Ingram[12] comes to the defence of the use of thallium acetate in the treatment of ringworm of the scalp. He takes a more favorable view of the method than do many. He believes that the ill effects, noted by others, come only from improper administration. He admits that he did encounter toxic symptoms but it was only occasionally; they were not severe and the patient invariably recovered. He does not admit that thallium acetate affects either the development or the growth of the child or does permanent damage to any organ. His method, which

he outlines, he says is perfectly safe in the hands of any practitioner.

ALLERGY

Stoland, Sherwood and Woodbury[13], writing on Chronaxia of Cardiac Vagus Nerve in Dogs Sensitized to Horse Serum and in Anaphylactic Shock, seek to add to our understanding of the phenomenon of allergy. They state that we are accustomed to associate increased irritability and permeability of the tissues with anaphylaxis. On the basis of their observations, Stoland and his associates conclude that these, however, are not the primary factors in anaphylactic shock. They tested the vagus nerves in dogs sensitized to horse serum. They found that the least stimulating dose was lower than for normal animals. They go on to say that in sensitized dogs the decrease may reach such a state that nerve block may occur. They find that the stimulation of the vagus nerve before a dose of antigen sufficient to cause shock does not necessarily modify the resulting anaphylactic shock.

In a communication to the Academy, Richet and Couder[14] reported a method of combating alimentary allergy which should excite enough curiosity to lead to further investigation.

The Richet method is very simple and, if proved successful upon further investigation, will be of inestimable value to dermatologists and others. Richet says that it is difficult to produce an anaphylactic state by way of the digestive tract. He reasons that if intestinal anaphylaxis is accomplished only when the intestinal mucosa has been washed clean immediately before the ingestion of food, cure should be accomplished by the opposite effect, that is, by protecting the intestinal mucosa with some form of inciting substance.

He found that substance in pure liquid petrolatum. His method of treatment consists in giving the patient a dessertspoonful of liquid petrolatum at the beginning or in the middle of each meal. He reports that in every case the allergic disorders disappeared the next day. Unless treatment is persisted in, however, the disorders will reappear. Therefore, it is necessary to continue this treatment for a considerable period of time.

Offhand one would hardly connect keratoderma blennorrhagicum with allergy, yet Scomazzoni[15] asserts that such may be the case. He reports the case of a patient who had a chronic urethritis and an arthritis for ten years in whom a keratoderma blennorrhagicum developed. No cocci could be found beneath the crusts, but inasmuch as the cutireactions to gonorrheal vaccines and to gonorrheal pus were positive the writer believes that the skin lesions should be considered allergic manifestations.

TUBERCULOSIS

In a previous report we noted the comparatively excellent results obtained by Loewenstein in the isolation of tubercle bacilli from the blood by means of cultures. Now Grimm[16] reports that, although he followed Loewenstein's technic very closely, he failed utterly to obtain such results. Grimm made 44 cultures from 36 patients, 18 of whom had either tuberculosis or a tuberculide of the skin. Not one culture was successful.

According to Low[17], however, if one would find the bacillus in a tuberculide one must seek it within a few days of the appearance of the lesion. Low explains that the reaction between the bacillus and the allergic skin is so great that the bacillus is destroyed quickly. Hence the lesion to be examined must not be more than two or three days old. On the other hand, if the skin is nonallergic for one reason or another, the bacillus thrives. Low illustrates the process as follows; A patient with a positive von Pirquet test acquires measles. As a result the test becomes negative and may remain so for weeks or months. Now if, during this period of negativity, the blood of the patient becomes infected with the tubercle bacillus, the bacillus, lodging in the skin, will produce lupus vulgaris. The skin has lost its allergy and therefore its power to inhibit the growth of the bacillus, and an active tuberculous process is the result. On the contrary, when the skin is allergic, the bacillus is destroyed.

Low's theory, then, enables us to understand the better and to translate the more intelligently such experiences as Milian and Périn[18] relate. They examined a case of granuloma annulare histologically and found it had a tuberculoid structure. This, however, they regarded as an exceptional finding. On the basis of what they found they believe that granuloma annulare should be included in the tuberculous group.

In like manner, Saxe's report[19] indicates that erythema nodosum is an active process and not a tuberculide, for in seven cases he found evidence of tuberculosis in all. He calls the lesions a reaction against tuberculosis.

Walgren[20] also indicates his belief that erythema nodosum occurs in non-protected children, in his article on the occurrence of the disease in school children. He says that when a child is infected with tuberculosis it takes from three to seven weeks before sensitivity to tuberculin develops. At this stage erythema nodosum may develop in a certain percentage of infected children. He goes on to say that by carefully examining the contents of the stomachs of 27 children having erythema nodosum he was able to detect the tubercle bacillus in 44% of the cases. He learned that the greater the involvement of the lungs, the better were the chances

of finding the bacilli in the gastric contents.

Penny[21], on the other hand, cites several cases to show that erythema nodosum can be caused by a variety of toxins. One case was that of a boy who had an erythema nodosum associated with a tuberculous meningitis. Another case was that of a woman who had erythema nodosum and a tuberculous granuloma of the breast. A third was that of a woman with a quinsy sore throat which was followed by erythema nodosum. He also refers to a fourth case in which erythema nodosum, facial palsy and iritis all occurred in the same patient at the same time.

A few references to the Gerson-Hermannsdorfer-Sauerbruch diet in the treatment of tuberculosis continue to appear.

Wiese[22], using the diet in the treatment of different forms of tuberculosis in children, is not so enthusiastic as some of the earlier writers. He tried the dietary method in 46 cases for periods varying from four months to one year. He could not see that it had any effect on skin tuberculosis. Some patients refused to undergo the distasteful regimen. The results in the pulmonary cases were poor.

Like Wiese, Crosti and Scolari[23] were not greatly impressed. They maintained the diet for a year in several cases of lupus vulgaris and for five months in a case of ulcerative tuberculosis of the palate. The result was satisfactory in but one case of lupus vulgaris. Three other cases improved. A long-standing case of atrophic lupus showed no gain. A case of lupus tumidus of the scalp grew steadily worse. The ulcerative process of the palate healed in four months, but the pulmonary condition grew much worse. No single patient was entirely cured.

LUPUS ERYTHEMATOSUS

The debate concerning the etiology of lupus erythematosus still continues as is evidenced by such papers as those of Bruner and Wasowicz.

Bruner and Wasowicz[24] studied the question from the angle of the presence or absence of signs of pulmonary tuberculosis, obtaining their data from 74 patients. Of these, 26 were rated as possibly tuberculous on the basis of family history or of physical or roentgen ray examinations. One case showed doubtful signs of activity. Fourteen cases showed evidences of a healed process. Six cases were negative to all study. From these data the reporters draw the conclusion that while tuberculosis plays an important etiologic rôle in lupus erythematosus, its importance is not so great as some writers would have us believe.

Cummer[25] studied the disease in infants and children. He reports several cases of his own and reviews the literature to date. He found that from 2.3 to 11 per cent occurred during or before the fifteenth year. Cases do occur, he says, as early as the first year, but grow progressively more numerous with each five-year period. Seven times as many cases develop in the period between the tenth and fifteenth years as in the period between the first and fifth years. When the disease starts in early childhood it may last for years. In one case Cummer reports it had been present for forty-two years. So far as the clinical course of the disease is concerned or its response to gold therapy, there is no difference between the childhood and the adult cases.

Gougerot, Burnier and Ragu[26] report the positive tuberculous inoculation of a guinea pig with tissue taken from a case of lupus erythematosus tumidus. The fragment was implanted in the thigh of the pig. At autopsy there was found an inguinal caseous adenitis and pulmonary tuberculosis. The glands and spleen were tuberculous and, on cultures, numerous colonies of tubercle bacilli formed.

GOLD THERAPY

Gold therapy which was, at first, heralded as an almost sure cure for lupus erythematosus has failed to establish this early claim beyond strong dispute. It is very nearly the case that every paper published in favor of the therapy is matched by the publication of a paper in denial. We also continue to receive reports of untoward accidents along with reports of favorable action.

The Paris correspondent of the *Journal of the American Medical Association* has summed up the present state of gold therapy in France about as follows[27]: He says that the therapy is still used in France for the treatment of tuberculosis especially for the stationary and slowly developing types of the disease. "But," he continues, "no one longer believes that it has a specific action on the Koch bacillus or that it exerts any other influence than to reinforce in a peculiar manner the defense of the organism against attacks and indirectly facilitate spontaneous recovery by its own means."

The writer states that the gold salts are still used in the treatment of lupus erythematosus and that the reports are favorable in about 60 per cent of the cases.

Trials of gold therapy in leprosy have resulted negatively.

Results in cases of bone lesions due to syphilis have been somewhat better.

Kleinman[28] has tried 4 amino- 2 auro-thiophenol carbonic acid in two cases of lupus vulgaris, 16 cases of lupus erythematosus and 19 of psoriasis. He concludes that its value in lupus erythematosus is very small and in lupus vulgaris and psoriasis is nil.

Pinetti[29] reports the use of a mixed therapy of gold and the arsphenamins in 16 cases of lupus vulgaris. He says that the results were good in 56 per cent, showed great improvement in 25 per cent and were unsatisfactory in 19 per cent.

Huguenin and his coworkers[30] used gold and sodium thiosulphate in cases of tuberculosis adenitis. Six grams was the upper limit of total dosage. All their cases responded but in differing degree according to whether the patient took his treatment regularly.

Two articles have appeared dealing with pigmentation following the administration of gold salts.

The first was by Lopez[31] who reports five cases in which pigmentation followed the use of sanocrysin, a gold salt. On that portion of the skin exposed to sunlight a violaceous discoloration developed which closely resembled the cyanosis accompanying circulatory disturbances. It occurred on such regions as the eyelids, the nasolabial folds, the sides of the neck and such portions of the chest and back as were exposed to sunlight. Sometimes a salmon pink color developed on the mucous membranes of the upper eyelids and the outer canthi. It was noted that the discoloration was the more pronounced on cold days and when the patient was tired. The appearance of the discoloration is gradual and is proportionate to the total amount of gold administered.

Gougerot, Blum and Desgrez[32] report a case of what they call gold tattoo. A young man was receiving intravenous injections of gold and sodium thiosulphate for pulmonary tuberculosis when he developed a bluish black stain in the bend of the right elbow about the site of the injection. Clinical analysis of a piece of skin from the stained area revealed the presence of gold. They then reproduced the condition experimentally by an intradermal injection of gold and sodium thiosulphate.

Throne, Kingsbury and Myers[33] have published a very careful article on the accidents in gold therapy. As a result of five years' experience they advocate certain definite, precautionary measures to be taken before administering the gold, to the end that accidents may be minimized if not eliminated. 1. If a focal infection is present, remove it. 2. Perform a preliminary analysis of the blood. (a) A high sugar content and a low chloride mean a physiologic dysfunction which should be corrected by a preliminary course of sodium thiosulphate injections. (b) Cases of high blood sugar but not associated with pancreatic deficiency or metal retentions should be treated cautiously and should be given but small doses. (3) Look for signs of intolerance. The first manifestations are usually a dryness of the mouth, pruritus, increase in blood sugar and a decrease in the urea nitrogen. (4) Start treatment with a small dose, 25 mgm., and keep the dose low so long as there is evidence of improvement. As positive contraindications to the use of gold they list marked hepatic or renal disturbance, lupus erythematosus disseminatus acutus, a discoid lupus erythematosus which is becoming actively disseminated, and an elevation of temperature.

SCLERODERMA

A few articles of interest on scleroderma have been published. Chief among them is Oliver's[34] on generalized scleroderma in children. Three cases of generalized scleroderma are reported, all in children a little over three years of age. One received thyroid for a short time but the others received no medication of any sort. They all recovered equally well. From this fact the conclusion is drawn that prognosis is better in childhood than in adult life. In the majority of cases reported, the rule has been recovery with little or no atrophy. In one case examined histopathologically the changes bore a close resemblance to those found in x-ray dermatoses.

Perutz[35] in one case studied the rôle of calcium in scleroderma. Tests of calcium function yielded a normal calcium curve. The administration of parathyroid hormone produced only a slight increase in the blood calcium. His conclusions from his study are that scleroderma is not due to a disturbance of the calcium balance but to a firmer fixation of the calcium salts in the tissues.

Leriche and Jung[36] advise surgery in the treatment of the disease but have no choice between parathyroidectomy and the various operations on the sympathetic. The results are about equal by either method.

Whereas Leriche and Jung advocate surgical treatment, Sellei[38] says that he has obtained by ferment therapy (pancreas, etc.) favorable results in the treatment of various skin atrophies, including white spot disease, when associated with scleroderma. His method[37] is to give the pancreatic extract by mouth or injection. He also uses gastric and duodenal preparations. Where there is an associated hypoacidity he combines hydrochloric acid with his treatment. According to Sellei[37] sclerodactylia is due to a disturbance of the central nervous system and is an angioneurosis. Scleroderma, on the other hand, he considers due to local changes in the skin and deep tissues which is in line with Perutz's[35] theory of a fixation of lime salts in the local tissues.

IRRADIATION

Under the heading chosen we have included such forms as the roentgen ray, radium, the Grenz ray and the ultraviolet radiations. From the composite field of these forms of light we have selected a few articles to represent each respective field.

It is well perhaps to begin with a warning such as that issued by Dr. J. S. Davis of Baltimore[39]. He warns that both the roentgen rays and radium have very great powers of destruction which must be taken into account just as much as their curative powers. He pleads there-

fore that their therapeutic use should be left entirely in the hands of experts who know the value of caution in their employment. For the treatment of such burns as may occur, despite precautions, he advocates wide surgical excision with closure of the defect thus made by tissue shifting.

Truffi[40], in the treatment of alopecia areata, would simulate the effect of vasodilatation and stimulation of the regenerative processes obtained by sympathectomy, by deep radiation of the sympathetic ganglia in the cervical region. He has treated eight cases by this method with favorable results in six. The regrowth of hair was stimulated only in regions corresponding to the zone irradiated.

Foerster[41] studied the value of this manner of irradiation in 98 cases. These included 38 cases of lichen planus, 22 of dermatitis herpetiformis, 13 of generalized, chronic, lichenified eczema and neurodermatitis, nine of genital and anal pruritus, five of scleroderma and six of herpes zoster. The rays were filtered. The application was made over the interscapular region or over the dorsolumbar according to the seat of the dermatosis on the body. The treatments were usually single although occasionally a repetition was given three weeks after the first. The most favorable results were obtained in acute or subacute generalized lichen planus and were of considerable value in the chronic, generalized cases. The treatment was of considerable benefit in dermatitis herpetiformis, in some instances bringing about recovery, though more than one treatment was required. The method was of some effect in scleroderma. In herpes zoster the course and intensity of the disease were shortened and the posteruptive neuralgia benefited.

Shanks[42] reports on a survey of 2400 cases of ringworm of the scalp treated by roentgen rays. He is particularly impressed with the importance of exact dosage. The problem is to give a dose sufficient to produce a falling of the hair and yet to keep it below the danger limit beyond which imperfect growth results. This safety zone is very narrow and easily overstepped. When as a result of approximately the same dosage several patients vary in their behavior, Shanks attributes the differences to a variation in the dose rather than to a variation in sensitivity. He considers that as yet a really satisfactory method of dosage estimation is not available.

Buschke[43] has previously reported that by pushing the Grenz ray to the point of epilation he had cured two cases of microsporon infection. He now reports that the same method tried on four cases was a failure. He explains his two successes by the fact that the two cases had received thallium before the Grenz ray was applied. He says that, alone, the thallium medication was of no effect but only when Grenz ray treatment was added. From this he suggests that the combination of small doses of thallium and the Grenz ray may be found helpful.

Desjardins[44] writes a very interesting paper on Hodgkin's Disease and lymphosarcoma.

In the matter of treatment he says that knowledge of the pathological distinction between Hodgkin's Disease and lymphosarcoma may have academic interest for the physician, but such knowledge is of little consequence to the majority of patients because the treatment of the two conditions is essentially the same. He says the only effective method of treating these conditions is radiotherapy, and as between the roentgen rays and radium he prefers the roentgen rays because they have many advantages. To attempt to treat conditions such as these with a few milligrams of radium is not to take one's responsibility to the patient very seriously. He admits that permanent cure by any scheme of irradiation is rare, therefore that method is best which gives the greatest improvement of symptoms. In his mind that means roentgen rays. He decries the use of high voltage rays, even though the immediate result is improvement, for the reason that exposure of the same territory to waves of short length cannot be repeated more than three or four times without risk of injury. Furthermore, when this resource is exhausted and nodes recur there is nothing more which can be done. In most cases rays of medium wave length are distinctly preferable. He advises the moderate quantitative dose of rays generated at 135 or 140 peak kilovolts and filtered through 4 mm. and 6 mm. of aluminum. Many areas may be exposed to this dose several times without undue risk, especially when the interval of exposure is a matter of months. Moreover, after the same territory has been irradiated many times, if the rays become less effective, one can still use roentgen rays of shorter wave length. He employs roentgen rays after two methods; in the one irradiation is confined to the regions in which the enlarged nodes can actually be palpated; in the other, a more general exposure of various regions even when no nodes are palpated; later restricting the exposure to these regions in which fresh nodes appear. The second general method, he believes, is superior to the localized method. He argues that although nodes may be palpated in only one part, experience teaches that nodes in other regions are usually involved either at the time of actual treatment or shortly after. To give this generalized irradiation, including the demonstrable nodes and the deeper nodes as well, requires from six to ten doses. Improvement occurs rapidly and the systemic reaction is seldom sufficient to interfere. He warns that one must not crowd too much treatment into too short a time. On the other hand, he says, if the treatment is spread over too long

a period its effect is greatly diminished. Three weeks after the first course, a second similar course was given and a third four weeks after the termination of the second.

Pfahler and Vastine[45] give an interesting account of their experience with the combined method of electrocoagulation and irradiation in the treatment of cancer of the lip.

The large majority of their patients gave a history of excessive smoking. Of their male patients 88 per cent smoked excessively and as an additional source of irritation many of these patients had been exposed to wind and sun.

In many cases they found associated with the definite epithelioma a dry, scaling, atrophic condition elsewhere on the lip. They have seen new lesions develop on new areas while treatment was in progress. They agree with Montgomery and Sutton in saying that there is a definite group of cases which follow seborrheic keratoses. They observe that some cases begin like fever blisters and these cases develop rapidly and extensively. A few cases seem to follow a single trauma or sting of an insect. They frequently encountered stories of repeated slight traumatism such as the irritation of a clay pipe stem; the habit of biting the lips and the effect of sharp teeth. In two of their cases there was a history of the lips having been burned by cinders; three cases in which the lesion was first observed following sunburn; two cases in which the patients bit the lip; nine cases followed repeated razor cuts; one followed a burn with lime; two in which rough teeth were the factor; four in which bruises preceded the lesion; three in which the lesion began as a fissure and 18 which began as a fever blister.

Arzt and Fuhs[46], comparing the results of a combination of surgical and radium treatment with the results of exclusive radium therapy in carcinoma of the skin and lips, reach the conclusion that the two methods have about equal value.

In view of the extravagant claims made by manufacturers for ultraviolet light it is well to give the summary of what the Council on Physical Therapy[47] has proved regarding light therapy. We therefore quote verbatim: "The evidence available January, 1932, indicates that ultraviolet rays have a prophylactic and curative effect on rickets, infantile tetany and spasmophilia and osteomalacia.

"Prenatal irradiation of the mother, and also irradiation of the nursing mother, appear to have a definite preventive influence on rickets. This, however, requires general irradiation of the nude body; mere exposure of the head and face could not be expected to yield such a result.

"Irradiation may also exert a beneficial action on other disorders of calcium metabolism, but the limits of such action, the conditions under which it may be produced, and the specific influence of the rays have not yet been fully explored and specified.

"Exposure of the lesions of erysipelas and a wide area of surrounding tissue has been shown to have a favorable effect on such lesions.

"The benefit derived by patients suffering from tuberculosis of the bones, articulations, peritoneum, intestine, larynx and lymph nodes when exposed to natural sunlight or to the rays emitted by certain artificial sources of radiation cannot be doubted, but the precise rôle of ultraviolet rays in such action has not been clearly determined. It is probable that visible radiation and the conditions of the atmosphere share in such action.

"As far as normal persons are concerned, the claim that exposure to ultraviolet rays increases or improves the tone of the tissues or of the body as a whole, stimulates metabolism or tends to prevent colds has not been conclusively substantiated.

"Among the diseases of the skin, on lupus vulgaris alone can ultraviolet rays be said to act specifically, and this only when the disease is treated strictly on the Finsen principle. In other dermatoses (scrofuloderma, erythema induratum, psoriasis, pustular folliculitis, indolent ulcers, furunculosis, acne vulgaris, angioma serpiginosum, parapsoriasis, pityriasis rosea) local or general exposure to ultraviolet radiation may have a favorable action, but the improvement that may result cannot be regarded as a specific effect of the rays. In some cutaneous disorders (eczema, psoriasis, lupus erythematosus, herpes simplex, erythema solare perstans, xeroderma pigmentosum, freckles, atrophy, keratoses, prematurely senile skin) exposure to such rays may cause an exacerbation, provoke an attack, or produce other injurious effects."

Herlitz, Jundell and Wahlgren[48] contribute food for thought in their article on Malignant Neoplasms caused by Ultraviolet Irradiation of White Mice. Three groups of animals were used in the experiment. One group was used as a control. The other two were exposed to ultraviolet rays under various conditions. It was found that, when the skin was poorly protected, hyperkeratoses, epithelial hyperplasias and, in some instances, ulcerations developed. Continuous exposure from 10 or 20 to 30 weeks caused carcinomatous, sometimes sarcomatous neoplasms. In some animals there were metastases to the lymph nodes and lungs. No tumors were found in the control group.

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VITAL STATISTICS IN NEW YORK STATE

A report has been published from Albany that there were 5,000 fewer marriages in New York State in 1932 than the year before and that the birth rate dropped from 15.2 per 1,000 population, the total number of births being 8,000 below 1931. This report is issued by Dr. J. V. Deporte, director of the division of vital statistics of the New York State Department of Health.

He sets forth that, despite adverse economic conditions, people of the State enjoyed excellent health last year, but fears that they have been living on their health capital, the accumulation of years of education in personal and group hygiene. The death rate in 1932 was the lowest ever recorded, 11.3 per 1,000 population. "In order to realize the degree of improvement represented by such a low rate," Dr. Deporte says, "one needs but to recall that at the beginning of the century the annual number of deaths was 18 in 1,000. Had this rate prevailed last year, there would have been 90,000 more deaths than the number which actually occurred."

Mortality of infants under 1 year of age showed a new low rate. Out of every 1,000 babies born alive, fifty-three died during the first year of life, the rate being less than half of that of twenty years ago.

New lows were also reached in mortality from diphtheria, 2.1 per 100,000 population; whooping cough 2.3, and diarrhea and enteritis in those under 2 years of age, 6.4. The death rate from measles, 1.6, was lower only twice in the past. However, due to an increase in the number of cases, the mortality from scarlet fever, 2.8, has not been higher since 1922. Suicide and diabetes showed new high rates, 20.2 and 29.6, respectively. The puerperal cases, 58.2 per 10,000 births, dropped to new low levels. The downward trend of tuberculosis continued and the pneumonia rate established a new minimum. Deaths from cancer declined slightly and the homicide rate, 5.7, was below 1931. Deaths due to alcoholism, 5.7, were at the lowest point in ten years.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 19071

PURPURA AND CONVULSIONS

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. AUSTIN M. BRUES*: *First admission.* This is the case of a fifty-one year old white married American woman who entered for the first time four months before her second admission. Her chief complaint at her first entry was loss of weight and strength of about three months' duration and fainting attacks.

She was originally seen in the Outpatient Department thirteen years earlier. At that time she complained of nervousness, slight tremor of the hands, anorexia and a few vomiting attacks. She was found to have a blood pressure of 170/110, a slight trace of albumin in the urine and nothing remarkable in the sediment. A gastro-intestinal series was negative. There is no record of the basal metabolic rate. She was considered to have hyperthyroidism and received six x-ray treatments over the thyroid with apparent relief of her symptoms of nervousness.

Four years later she had an abdominal operation at another hospital at which an ovarian cyst is said to have been taken out, also her appendix. Gall stones were found and removed.

Three months before her first admission she had a sharp non-radiating pain in the interscapular region. She lost consciousness. The pain lasted three hours. She vomited for three days and felt sick for three days more. Following that she had paresthesia of the left side of her body as far down as the hip. She was well for the next few days. Then she began to vomit again. Since that time she had vomited, usually in the evening. She had had nocturia four or five times at night for a long time. She had lost twenty-three pounds during the three months.

Her husband had been insane for fifteen years. The patient had had three miscarriages. Her mother died at fifty-one of tuberculosis; the patient was exposed.

On physical examination she was found to have a dry coarse skin. The heart was enlarged considerably to the left. There was a systolic murmur all over the precordium. It was thought that she had a fine tremor of the extended fingers. The blood pressure was 240/155. The fundi showed very marked vascular changes with flame shaped hemorrhages.

The urine showed a fixation of specific gravity at 1.009 to 1.010, a slight trace of albumin, a few white cells, no casts. Blood examination showed hemoglobin 60 per cent, red count 3,800,000, white count 14,000. A Hinton test was negative. The non-protein nitrogen was 56 milligrams. The carbon dioxide combining power was 53.6 volumes per cent. Two basal metabolism tests showed —4 and —9.

At the end of eight days she was discharged. We considered that the prognosis was only a matter of months.

History of interval. She did fairly well for about four months, although she never felt up to the mark. The day before her second admission she had some sort of generalized convulsion with brief loss of consciousness. During that day she noticed some black and blue spots on her skin. She had never noticed anything of the sort before.

Second admission. Four months after her previous discharge she came into the Emergency Ward. On examination she was seen to have brownish pasty skin and ecchymoses all over the arms, legs and trunk. There was slight dyspnea and heavy breath. The blood pressure was 190/120. The hemoglobin was 55 per cent, the white count 21,000. The smear showed moderately reduced platelets; otherwise it was not remarkable. The urine showed a specific gravity of 1.010, occasional granular casts, many white cells, occasional red cells. The red count had dropped to 2,500,000 from 3,800,000 at the previous admission. The bleeding time was 17 minutes, the clotting time 7 minutes. The clot retraction was not noted. The non-protein nitrogen was 120 at entry, rising to 133, 145 and 155. At the same time the carbon dioxide combining power was 39.1 to 24.8. We thought it was a disturbingly low level. Transfusion was done in the hope of causing a rise in the carbon dioxide combining power. This did not take place. There was no appearance of renal function dye in thirty minutes. A urea clearance test showed 9 per cent function.

She was very drowsy throughout her stay in the hospital. The day before her death she developed a friction rub over the precordium. She died very quietly in her sleep eleven days after admission.

CLINICAL DISCUSSION

DR. WILLIAM B. BREED: I think it is of some interest here to try to evaluate the importance of the possibility of hyperthyroidism as a background in this case. In 1919 there was no routine basal metabolic rate determination. She

*Recently senior interne on the East Medical service.

was given a series of x-ray treatments over the thyroid without real evidence of hyperthyroidism. She is said to have improved, but I think we should not take that improvement too seriously as evidence that she did have a background of hyperthyroidism. She had no goiter. She did have tremor and nervousness.

Another interesting thing about her case is the prognosis that was given at her first entry. It happened to be fairly accurate. On looking back I do not see anything in the record that would make one give such a bad prognosis. To be sure her non-protein nitrogen was 53, but her carbon dioxide combining power was good. I think it may have been more her general appearance and her reactions rather than anything that was in the record that made them give such a bad prognosis at that time.

DR. TRACY B. MALLORY: One thing very difficult to get into a record is the impression of the examiner as to just how ill the patient is. Quite often the patient must obviously be deathly ill, but only by indirect evidence can one guess it from the routine record.

DR. FREDERICK T. LORD: Do I understand that the diagnosis was chronic glomerulonephritis?

DR. MALLORY: Yes.

DR. LORD: It seems to me that the case would fall more naturally into the group with nephrosclerosis or arterial nephritis. She was fifty-one at the time of death.

DR. JAMES H. MEANS: I do not think I saw this patient. I should agree with Dr. Lord that it sounds more like cardiorenal disease with that degree of hypertension. If I had to make a guess I should guess that first. I have not the faintest idea whether she had thyrotoxicosis or whether she could have been benefited by x-ray. I think they thought she might have myxedema at the last entry, and that was ruled out.

I do not get Dr. Breed's point about the relationship between thyroid and renal disease. I do not think there is any relationship. Sometimes patients with myxedema have cardiorenal disease, and people who have had Graves' disease might have it.

DR. BREED: The relationship is with essential hypertension and not with glomerulonephritis. I should agree that glomerulonephritis is not so important as essential hypertension in a possible relation to hyperthyroidism.

DR. MEANS: You think there is a relation between hypertension and hyperthyroidism? I do not believe there is.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Chronic glomerulonephritis.
Uremia.

ANATOMIC DIAGNOSES

Chronic glomerulonephritis.
Hypertrophy of the heart, hypertensive.
Pulmonary congestion, edema, and atelectasis.
Acute fibrinous pericarditis.
Coronary sclerosis, slight.
Purpura.
Old operative wound: suspension of uterus and bilateral salpingo-oophorectomy.

PATHOLOGIC DISCUSSION

DR. MALLORY: I am afraid that the autopsy is not going to settle anything about the thyroid. It was a restricted autopsy. But we did find a very advanced nephritis which I think would have to be classified as of the glomerular type.

The combined weight of the kidneys was 125 grams. With a malignant vascular nephritis such an amount of destruction of renal tissue as that does not often occur. The weight of a pair of kidneys with vascular nephritis at the time of death is rarely under 200 grams. They are apt to weigh 250 or 225, possibly 200. In a chronic glomerulonephritis of long duration at the time of death in the vast majority of cases the kidney weight will be well under 200 and perhaps under 150. I have seen a pair of kidneys in an adult at the time of autopsy weigh 25 grams. It seems incredible that patients can live so long with so little renal substance. Merely on the gross examination I should feel quite confident of the diagnosis.

As a matter of fact the gross examination here is more helpful than the microscopic, as it sometimes is. One can see at a glance that this is a kidney in which a tremendous amount of renal tissue has been destroyed. In large areas we have nothing but vascular scar tissue and between these scars are islands of greatly dilated tubules. Where we find persistent tubules we usually find one or two persistent glomeruli. In other places they have been destroyed practically beyond recognition. The actual glomeruli that are left here are many of them in pretty good condition, but there is only a very small number of them still left. Even those that persist show in places a good many adhesions between the tuft and its capsule with a considerable amount of proliferation of endothelial cells inside the capillaries. In most of them however the process has gone on to such a late stage of hyalinization that we cannot tell what the earlier stages might have been.

There is a great deal of vascular change, as one always finds in the late stage of any kind of nephritis, very possibly simply the obliterative type of arterial degeneration that occurs whenever a blood vessel is no longer in use. It is exactly analogous to the changes one finds in the uterine blood vessels a year after pregnancy. Large areas of kidney tissue have been completely scarred, no function left at all, and the blood vessels leading to them no longer serve a useful purpose, so it is not unnatural that

they should show thickening of their walls and eventual obliteration. But the acute active lesions in the blood vessels that one expects to find in malignant vascular nephritis are not present.

One reason for bringing the case up today was the symptom of purpura appearing just at the end, at the time the patient was uremic. I think she never had any until the last three or four days. I have an impression of having seen purpura a number of times in the end stage of a severe nephritis, but I am rather doubtful whether I have ever seen it in the early stage.

DR. MEANS: Is pericarditis quite a common terminal event?

DR. MALLORY: It is present in practically fifty per cent of the cases and a terminal colitis in just about the same number, although they only rarely present symptoms. In one of our cases here terminal enteritis was so severe that we had an intussusception of the ileum into the cecum and strangulation; but in general that passes entirely unnoticed clinically. I suppose the patients are comatose and we do not know whether they have diarrhea or not.

DR. MEANS: Are they the people who have had salyrgan?

DR. MALLORY: I think not.

DR. WALTER BAUER: This case brings up the question as to how often we see purpura secondary to nephritis and whether it is ever observed in other than the terminal or uremic stage. Is the purpura of nephritis related to the anemia or is it secondary to some toxic action on the blood vessels? I had always thought that purpura was seen only in the terminal cases of chronic glomerular nephritis and that it probably was due to some toxic action on the blood vessels. Yet recently we observed a young woman on the Medical service with purpura of a few weeks' duration and definite evidence of kidney impairment characteristic of a mild chronic glomerular nephritis. The urinary findings were characteristic, the specific gravity of the urine was low and the fractional phenolsulphonephthalein test was reduced. Her blood pressure was elevated, yet the non-protein nitrogen was normal. The question was raised as to whether we were dealing with an allergic type of purpura with nephritis secondary to it or a mild chronic glomerular nephritis exhibiting purpuric manifestations. From the history it was learned that urine examinations fifteen months previous had shown low specific gravity, albumin, red blood cells and casts. These findings favored the existence of nephritis prior to the onset of her purpura, therefore I thought we were dealing with a case of mild chronic glomerular nephritis with purpura. The only other abnormality of her blood was a prolonged clotting time; this finding was never explained.

DR. MALLORY: We see cases of chronic nephritis that show purpura in the terminal stages, although as a rule it must be relatively uncommon. We had a case* presented here about a year ago, a young girl fifteen years old with a severe nephritis that must have been present four or five years, and very severe purpura. On her a diagnosis of thrombopenic purpura was made and the spleen was removed. She died within a short period in uremia.

DR. WILLIAM B. ROBBINS: Yes, I remember that case. She had apparently the blood of a thrombopenic purpura and also an advanced nephritis.

DR. MALLORY: She had had purpura for two years.

DR. ROBBINS: So far as we could find there was no reason for it unless it was due to some unknown infection.

*Case 18031, published January 21, 1932.

CASE 19072

ACUTE PURPURA

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. ALFRED KRANES:* This is the case of a seventy-one year old white Portuguese fisherman who entered the Emergency Ward complaining of nosebleed of five days' duration.

He had always been perfectly healthy until six weeks before entry, when he began to have rather severe headaches perhaps two or three times a week. This went on until the time of admission. Two weeks before admission he developed generalized weakness which had gradually increased. Seven days before admission black and blue spots appeared over the arms and legs. Five days before admission he had very severe nosebleed which persisted and could not be controlled by packing and cauterization. On the day it started he had nausea and vomiting three or four times. While at stool that evening he fainted and was unconscious for fifteen minutes. His memory was said to have been very poor for the past week and his bowels had become very markedly constipated. He had not noticed the color of his urine or stools. Three days before admission he began to bleed from his gums and two days before was incontinent of feces on one occasion. His nose had bled steadily for five days and his weakness had gradually increased.

He had never been ill before in his life.

Physical examination showed an obese, slightly drowsy man who looked a good deal younger than seventy. The mucous membranes were rather pale. The entire body was peppered with petechiae and purpuric spots, and there were many large ecchymoses. Blood oozed from the

*Assistant resident on the East Medical service.

nostrils and gums. There were numerous petechiae on the hard and soft palates. Both eyes showed subconjunctival hemorrhages. The pupils were normal. Both disks were slightly choked. There were many retinal hemorrhages. The vessels were apparently fairly normal considering his age. The heart, lungs and abdomen were negative. The blood pressure was 140/80. Except for a bilateral Babinski, which was very definite, the rest of the examination was entirely negative.

Urine examination on admission showed a specific gravity of 1.025. There was no albuminuria. There were numerous red cells and hyalin casts in the urine. At five or six subsequent urine examinations these findings were not confirmed; no more red cells or casts could be found. The red blood count was 2,800,000, the hemoglobin 50 per cent, the white count 17,000. The differential count was normal except for 8 per cent eosinophiles and 8 per cent myelocytes on two occasions. No platelets were seen in the smear. The stools were negative for occult blood. A Hinton test was negative. The bleeding time was twenty minutes, the clotting time five. Clot retraction was very poor. The non-protein nitrogen the day after entry was 40 milligrams. The bleeding time on subsequent examinations ranged from seven minutes to over an hour.

Because of his age and the rather acute onset of his symptoms it was felt that he did not have a primary thrombopenic or idiopathic purpura but probably a symptomatic purpura the exact cause of which was not clear. Leukemia was considered. The presence of myelocytes was thought to be of no significance since there was no other evidence of leukemia. The spleen and glands were not palpable. There were no other abnormal cells besides the myelocytes. It was thought that perhaps they might represent a posthemorrhagic bone marrow response. We did not have sufficient evidence to make a diagnosis. Because of the case of the little girl whom Dr. Mallory mentioned* who had been in the ward several months before with severe nephritis and purpura, it was thought that he might have nephritis. The non-protein nitrogen was 40 milligrams. The urine, except for the admission sediment, which contained ten or twelve red cells and numerous hyalin casts, was negative. The specific gravity ranged as high as 1.025. An intravenous phthalein test was attempted, but the patient was very uncoöperative and would not void on time, so the attempt was abandoned. No other renal function tests were done. X-rays of the gastro-intestinal tract were negative, and the chest, except for an old tuberculous lesion, was negative.

Under rest in bed, fluids and a high vitamin diet he improved. We thought it possible that he might have scurvy. He improved very markedly and at the end of a week or ten days was up and about in a chair. His bleeding time was still considerably elevated. It was thought advisable to try to bring it down by intravenous typhoid. When this was administered he began to bleed from practically every part of his body, the nose, the gums, into the skin and the eyegrounds, and became worse than ever. Then it was decided to give him some x-ray treatments over the spleen. This was done without improvement. Transfusion of whole blood did no good.

He was seen by several consultants and it was decided that he ought to have a splenectomy. He was transferred to the Surgical service, where this was done. He stood the operation very poorly. The blood pressure fell very markedly during the operation, although he did not bleed very much. The operation was followed by another transfusion of whole blood. He returned to the ward in very poor condition and remained so until the end. His temperature was 103° and ranged between 103° and 104° for the rest of his stay in the ward. He became stuporous. Three days later signs of bronchopneumonia appeared. Two more transfusions were done without much improvement. He continued to bleed and go downhill. During the week no platelets were found in the blood smear. Four days after the operation the non-protein nitrogen rose to 110. He died seven days after operation.

Clinical Discussion

Dr. William B. Robbins: An interesting point about this man is that although he was seventy-one years old he was a young looking man for his age and apparently was in fairly good health.

The acute attack of purpura was very severe and very strongly suggested thrombopenic purpura. The question came up as to whether this was due to some cause other than nephritis. We tried our best to test that out and finally decided that it was not nephritis, on the ground that the urine, the blood pressure and the general picture did not justify the diagnosis. It was a very questionable situation. He was evidently bleeding to death. Whether the typhoid inoculation had anything to do with it or not is a question. As nothing seemed to relieve the bleeding we thought it was advisable to consider splenectomy. I talked with a number of men. It seemed to me that splenectomy was the only treatment we could give and we hoped that by getting him into as good condition as possible we would be justified in doing it, and it was done.

In this case the question of age incidence of thrombopenic purpura came to mind. One of the staff told me he was under the impression

*See preceding discussion, Case 19071. The case mentioned is Case 18031, published January 21, 1932.

that he had not seen it in a person of seventy. Another informed me that he had seen it in six people over sixty. That is an interesting point, not usually known.

Another interesting point is the lung condition. I should like to know whether there was a hemorrhage in the lung or whether it was bronchopneumonia. We had a similar case last year.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute purpura hemorrhagica, idiopathic type.
Bronchopneumonia.

ANATOMIC DIAGNOSES

(Thrombocytopenic purpura.)
Operative wound, splenectomy.
Hemorrhage into the lungs, the gastro-intestinal tract and the bladder.
Arteriosclerosis, moderate, aortic, coronary and renal.
Prostatic hypertrophy, slight.
Chronic fibrous pleuritis, right.
Fibrinous pericarditis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The autopsy on this man showed the kidneys to weigh 275 grams, which is slightly below normal, a capsule that was a little adherent, and a slightly granular surface. The cortex was diminished to 3 millimeters, distinctly below the normal, which is 7 or 8.

On microscopic examination there is a moderate amount of change in both the large and the small blood vessels with groups of hyalinized glomeruli here and there, but by and large it is the kidney that one would expect to find with a moderate grade of hypertension and not at all the kidney one would expect to find with uremia. The condition does not look very advanced. We cannot of course make a diagnosis of uremia from a kidney section; we can only say that with changes of a certain degree it is probable or improbable. We found a moderate grade of cardiac hypertrophy. We found acute hemorrhages everywhere. The peritoneal cavity was full of them. The gastro-intestinal tract was full of fresh blood.

The lungs showed scattered throughout nearly all the lobes innumerable small bright red areas of increased firmness which we felt quite definitely were areas of hemorrhage into the alveoli, not areas of pneumonia. The findings in the acini were like those in the other case which Dr. Robbins mentioned, of multiple hemorrhages rather than a pneumonic process.

My own feeling in regard to the case is that there is not enough nephritis here to make it at all reasonable to assume that the purpura was dependent upon it. I think we must have another cause for the purpura. Whether it is really a case of idiopathic thrombopenic purpura or not is still a very open question. There is no way in which we can make the diagnosis at autopsy, since there is no recognized pathology of that condition.

A PHYSICIAN: Did you examine the bone marrow?

DR. MALLORY: It seemed slightly atrophic.

A PHYSICIAN: Were there no megakaryocytes?

DR. MALLORY: There were some. All the elements seemed slightly diminished, but not strikingly.

A PHYSICIAN: Were there any further findings in the lungs?

DR. MALLORY: There were large amounts of fresh fluid and blood in all the bronchi.

CASE 19073

INCREASED INTRACRANIAL PRESSURE OF UNCERTAIN CAUSE

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. ALFRED KRANES:* *First admission.* This is the case of a forty year old white widower, a bus driver, who first entered the Medical service six weeks before his second admission. His chief complaint was headache and dimness of vision for five months.

His illness began two years before entry, when his doctor discovered hypertension and albuminuria. Under dietary treatment his weight fell during the year from 224 pounds to 206. A year before admission he began to have severe headache and vomiting every three or four weeks. Four months before admission on his way home from work everything suddenly turned black. He felt very weak. He managed to get home and fell unconscious on the bed. Of the next sixteen days he had absolutely no memory. During that time he was quite manic and frequently had to be restrained. His doctor reported that he complained of severe headaches and of marked dimness of vision, particularly in the left eye, and vomited frequently. The doctor was unable to obtain his knee jerks, and found marked hypertension. The patient improved slowly after these sixteen days. His memory gradually returned and except for rather severe headaches, nausea and vomiting during the next four months he felt moderately well. During these four months he had nocturia averaging three or four times and passed rather large amounts of urine. The dimness of vision grew progressively worse. He was able to get about fairly well.

Four days before admission, after vomiting during the entire day, he had a period of loss of consciousness with epileptiform convulsions lasting several minutes. There was no aura preced-

*Assistant resident on the East Medical service.

ing this. He did not lose sphincter control or bite his tongue. Following this he felt pretty well. There was no residual paralysis of any kind.

His wife died a year before his admission, of cancer of the breast. His mother died at the age of sixty-seven with heart disease.

The past history is irrelevant.

On physical examination he was found to be rather obese and somewhat euphoric. The left eye was slightly more prominent than the right. The pupils were normal. Both disks were choked two to four diopters, the left more than the right. The arteries were narrow and tortuous. There were recent and old hemorrhages and exudate scattered throughout the retinae. The peripheral arteries were not sclerosed. The heart was enlarged to the left. There was a soft apical systolic murmur. The aortic second sound was very markedly accentuated. The blood pressure was 230/150. An electrocardiogram showed inverted T_1 and left axis deviation. A smooth non-tender liver edge was felt two to three finger-breadths below the costal margin. Except for the eyes the neurological examination was fairly normal.

The urine showed albumin, from a slight to a large trace, occasional white cells, red cells and numerous casts. The red blood count was 4,500,000, the hemoglobin 80 per cent, the white count 19,000, 81 per cent polymorphonuclears. A Hinton test was negative.

X-rays of the skull taken shortly after admission were negative except for anatomical variations in the posterior parietal bones.

Despite the choked disks it was felt that he did not have brain tumor. A lumbar puncture showed perfectly clear fluid under an initial pressure of 310. The dynamics were normal. The fluid was negative except for a total protein of 51.

A number of renal function tests were done; they can be briefly summarized as follows: The non-protein nitrogen was 27 milligrams. The specific gravity of the urine by concentration was up to 1.024. A twelve hour night specimen was once over a liter. A dilution test was done. We gave him a liter of water. At the end of four hours only 400 cubic centimeters was excreted. The phthalein output at the end of fifteen minutes was 10 per cent. This was confirmed by several examinations. Two urea clearance tests showed 67 to 97 per cent of the normal function. As a result of these various tests it was thought that there was not a great deal of renal damage.

The patient continued to run a considerably elevated blood pressure. The diastolic was usually between 140 and 160. His white count continued to run about 20,000 during his two weeks in the ward. The average temperature was 99.5°. We had no explanation for either of these things. He complained of pain over the left eye and very severe headaches, which continued. Practically every morning and occasionally in the afternoon he had an attack of vomiting after these headaches. It was realized that nothing could be done for him. He was discharged at the end of two weeks unimproved.

History of interval. Two weeks after discharge he visited the Outpatient Department, where he was still complaining of headache, nausea, vomiting and dimness of vision. It was thought that venesection might be of value. He was bled 300 cubic centimeters and sent home.

Two weeks after this, a month after discharge, he came to the Emergency Ward with the story that ever since the venesection he had felt decidedly weaker and had gone downhill, particularly during the past eight days. Headache and especially nausea and vomiting had been very troublesome. Ten days before admission to the Emergency Ward he had a period of perhaps four or five hours during the night when he was confused, seemed to be in delirium and was disoriented; but when morning came he felt perfectly well except for nausea and vomiting. The vomiting persisted 10 to 15 times a day without abdominal pain until his reëntry.

Second admission, a month after his previous discharge.

When seen in the Emergency Ward he appeared to be very much sicker than a month previously. He was dehydrated. Physical examination was much the same as before except that his vision was much poorer. The blood pressure was 240/150. The pulse was 120, with occasionally four or five beats at the rate of 60. A lumbar puncture revealed grossly bloody fluid at an initial pressure of 700.

The laboratory work after he was admitted to the wards was essentially the same as before except that the renal function was further diminished.

With spinal drainage he gradually improved and the vomiting became less frequent. During the two weeks he was in the hospital he was very difficult to manage some of the time. He slowly improved, and after two weeks was discharged.

Dr. Clarence H. Staples: For about ten days after discharge he stayed in the same condition. Then one evening he had two convulsions preceded by diplopia and twitching of the right eye. He developed anasarca, which he did not have before. The urine showed a low specific gravity and was considerable in amount. Six weeks before he died he developed Cheyne-Stokes respiration which persisted until his death. There was orthopnea. During the last two or three days he ran a persistent low grade temperature with cough. The anasarca improved during the time he was at home. There was practically no edema at the time of death. His weight fell very rapidly from 235 to less than 180 pounds. He was moderately delirious

at night. He gradually failed, had increasing cough and Cheyne-Stokes respiration, and during the last two or three days ran a persistent low grade temperature. Nine weeks after his discharge he died.

Clinical Discussion

Dr. G. Colket Caner: I vaguely remember seeing this patient. We see a good many cases with choked disks due to hypertension; it seems to me that the congestion and hemorrhages in his fundi suggest that the choked disks in this case were due to hypertension. I imagine that he had a number of brain hemorrhages, accounting for his states of confusion and his convulsions.

His spinal fluid pressure is higher than one usually sees even with marked hypertension, but he may have had some hemorrhages and considerable cerebral edema to account for it.

Dr. F. Dennette Adams: We believed on the Medical service that he had malignant hypertension with hemorrhage, in spite of the fact that his persistent extensive cerebral symptoms could well have been due to brain tumor. The stumbling blocks were the high white count and the low grade fever. I am anxious to find out if these were due to a low grade pericarditis, which these patients so often have for several weeks, sometimes without the usual physical signs.

Dr. James H. Means: I remember seeing him at his first entry. I thought he had malignant hypertension. The chief episode was that he had no memory for a fortnight or thereabout, during which time he was highly excited. That puzzled me a good deal. I do not quite see what that was. It does not sound like subarachnoid hemorrhage then. I wonder why bleeding him did not do any good. It was quite evident that it made him worse. That was distressing, because we ordinarily feel that a hypertensive should be bled when he has persistent headache like this. I think the headache is usually distinctly improved for a number of weeks. Sometimes when they bleed themselves by nosebleed they improve. This man apparently got steadily worse from the time he was bled, and I do not know any good reason for it. Perhaps you can give us the reason from the anatomic data.

Clinical Diagnoses (From Hospital Record)

Essential hypertension.
Chronic vascular nephritis.
Subarachnoid hemorrhage.

Anatomic Diagnoses

Malignant vascular nephritis.
Cardiac hypertrophy and dilation.
Congestive heart failure.
Bronchopneumonia.
Pulmonary infarction.
Pulmonary edema and congestion.
Multiple softenings of the brain.
Slight erosions of the stomach.
Slight cholesterosis.

Pathologic Discussion

Dr. Tracy B. Mallory: I do not believe I can answer many of these questions.

The pericardium was adherent over the entire heart, so he had no good way of developing pericarditis. Presumably he had had his pericarditis in youth and had an obliterated pericardium.

The heart weighed 400 grams, definite though slight hypertrophy.

The kidneys weighed 275 grams, which is very slightly less than normal. The cortex however measured only 3 millimeters. There was a good deal of perirenal and a certain amount of hilus fat. The hilus fat undoubtedly added a bit to their weight. Weight however in these cases with more or less cardiac decompensation is rather deceptive, because there is chronic passive congestion, which tends to increase the weight beyond that of the actual renal substance. The capsules stripped with some difficulty and left a surface that was both coarsely and finely granular. When fresh it was very bright deep red, in contrast to the rather grayish surface that one ordinarily sees with the end stage of chronic glomerulonephritis.

Microscopically there were well marked arterial changes that are perfectly consistent with a very severe or malignant type of vascular nephritis. In contrast to the kidney which I showed you first today*, there is very little actual destruction of renal substance. Small numbers of tubules have disappeared, but there are not the large scarred areas and there are not the islands of dilated hypertrophied tubules. The medium sized blood vessels show thickened walls and reduplicated elastica. The minute arterioles show quite uniformly well marked hyaline changes with occasional deposits of fibrin. Here and there the glomeruli show definite capsular proliferation, as they do in the more extreme cases of vascular nephritis, that is, the more rapid types. Just below this glomerulus you can see the afferent artery entering it and below that a larger vessel running out below the cortex. Both of those arteries are almost completely obliterated. There is only the slightest fraction of the lumen left. The glomerulus shows obliteration of the capsule or space. That is the type of change one finds throughout the kidneys, but in some areas it is more acute than this.

It is a rule in these cases that arteries else-

*Case 19071.

where in the body show approximately the same changes. Regularly the arteries in the spleen show more marked ones than in the kidneys. Somewhat similar changes, but not so striking, were found in other organs.

I will ask Dr. Kubik to describe the brain.

Dr. Charles S. Kubik: There are three conspicuous vascular lesions, two old ones and a recent one. All of them are in close relation to the ventricles. A recent infarct, probably several hours old, occupies the head of the left caudate nucleus. In the occipital region on each side are old vascular softenings, one of which unquestionably extends into the subarachnoid space, since the meninges are stained with hemosiderin. I should suppose that either one of the older lesions might have accounted for the blood found in the cerebrospinal fluid at a previous admission, but the one involving the subarachnoid space was probably responsible. The lateral ventricles are enlarged, presumably as a result of degeneration of the cerebral tissue.

Dr. Mallory: Everything we found is perfectly consistent with a case of malignant hypertension or malignant vascular nephritis, whichever one prefers to call the disease.

Dr. Holmes: I am wondering if it would not be possible to inject a dye into the veins and determine the size of the kidneys. Most cases of malignant hypertension show very small kidneys.

Dr. Mallory: It is rather the kidney at the end stage of glomerulonephritis which is markedly smaller than normal. If you could make out a definite renal shadow less than half the normal size it would give you the diagnosis.

A Physician: Was there any lowering of the blood pressure following the spinal fluid drainage?

Dr. Kranes: No; it kept up all the time.

Dr. Mallory: Anatomically he had very marked disease of the kidneys. It is surprising that most of his renal function tests over so long a period were very good indeed.

Dr. Earle M. Chapman: These cases are particularly interesting to me because in each one the estimation of kidney function was the most important laboratory procedure. In the first case both the urea clearance and the phthalein excretion were markedly impaired. In the second case function tests were not done because of the lack of coöperation and the fear of initiating further hemorrhage by catheterization. In the third case I would take exception to Dr. Mallory's remark that the function tests were good. In this case the urea clearance was repeatedly within normal variation, but the fractional phthalein test showed a diminished function at the first examination and when repeated two months later indicated a further decrease in function. I should like to emphasize the interpretation of phthalein excretion tests. It is not the total amount of dye excreted in two hours but rather the curve of elimination in this period that is important. In the normal an average of 35 to 40 per cent of the dye is excreted fifteen minutes after intravenous injection. When we apply this to this last case we find that a two hour total of 40 per cent was excreted, but only 10 per cent appeared in the first fifteen minutes. This delay in excretion indicates definite kidney damage and in this case the test was of more value than the urea clearance test.

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STATE-AIDED CLINICS FOR THE TREATMENT OF GONORRHEA AND SYPHILIS

SYPHILIS and gonorrhea are communicable diseases; as such, their control becomes legitimately one of the functions of the State Department of Health. In exercising this function, the Department of Health meets with difficulties, too obvious to need description, which are not encountered in dealing with diphtheria and scarlet fever. It is impossible, at least in the present stage of civilization, to quarantine those persons afflicted with syphilis or gonorrhea; the only important way in which the State can exercise any control over them is by making certain that throughout the Commonwealth proper facilities are provided for their treatment.

The Department of Health is correct in assuming that this matter cannot be left entirely in the hands of the individual practitioner. Many physicians are unwilling to treat patients with syphilis or gonorrhea; a study recently conducted by the Department of Health shows that only 46 per cent of Massachusetts physicians admit that they treat gonorrhea and only 39 per cent admit that they treat syphilis. A proportion of those who do accept these cases are undeniably not qualified to care for them properly. Aside from these considerations, there are many patients who are unable to pay the cost of adequate treatment by private physicians.

The best way to meet these conditions, the State has wisely decided, is by the establishment of clinics. Clinics can be geographically located to respond to the distribution of patients; in clinics, those physicians in each community who are best trained to care for gonorrhea and syphilis can be further trained and utilized to best advantage; clinics can be assisted financially and educationally in a way that individual physicians cannot be, and can be kept under supervision to make certain that they maintain a minimum standard of efficiency.

Twenty-eight public clinics have been so established, but it must be understood that none of these are maintained or operated by the State Department of Health. All but six are located in and maintained as a part of the out-patient departments of general hospitals or general dispensaries. Fourteen of these clinics have received financial aid from the State, the annual subsidy varying from $500 to $1200, and totaling $12,000. The amount contributed by the State has been but a small proportion of the cost of maintaining these clinics; it has amounted to approximately one dollar per year per registered case, or a little over six cents per visit. In addition to the subsidies, the State distributes free of cost arsenicals for the treatment of syphilis. The drugs so distributed to the clinics cost the State about $5000 a year. The fourteen clinics aided by the State admit in the neighborhood of 2200 new cases of syphilis and 2700 or 2800 new cases of gonorrhea each year.

The State Department of Health has recently prepared a set of Minimum Standards for Clinics for the Treatment of Gonorrhea and Syphilis. These standards prescribe the physical equipment and the personnel of a clinic, formulate general rules pertaining to frequency of visits, and state the requirements which must be met before the patient may be discharged as cured. These "Minimum Standards" have been

submitted for criticism to various venereologists and to the Neisserian Society of Massachusetts and to the New England Dermatological Society, both of which have officially expressed their approval.

In the clinics a great deal of time is spent in instructing the patients as to conduct and in searching for contacts and sources of infection. This is possible because the physician has the assistance of a staff of nurses and social workers who can do the greater part of this work for him. Consequently, so far as the control of the patient is concerned or the search for other infections related to that in the patient, the clinics are more effectively equipped to control gonorrhea and syphilis than the average practitioner, yet the private physician sees by far the majority of patients with these communicable infections.

There is some feeling that the clinics treat a great many patients who are able to pay a private physician. Recently the Lowell Clinic submitted a complete list of its clinic registration. Nearly 50 per cent of the total registration was of patients registered with the city welfare department, and without exception social investigation showed all the remainder either to be in the hands of some other local welfare agency or employed at exceedingly low wages, or the members of large families with small incomes.

As a matter of fact, it is not at all infrequent to discover that a physician not interested in the management of gonorrhea or syphilis will refer a patient, perfectly able to pay a physician, to the nearest clinic rather than to some physician who does treat these diseases. The Lowell Clinic turns back to some twenty or thirty physicians each year almost as many cases as are referred to the clinic by physicians.

It is difficult to see how the State Department of Health could better meet the challenge of syphilis and gonorrhea than through the establishment of these clinics. Opportunity for adequate care is provided for the indigent, and for those who can afford to pay, physicians are being trained to help them through their difficult hours. A standard of treatment is set up in every community; if the public will but take advantage of these opportunities, the danger of communicating these diseases to others will be materially reduced.

END RESULTS

It is over twenty years since Codman began calling on the local profession to pay more attention to ultimate results. Even today medical publications are flooded with articles that either present no ultimate results or, if they do present them, do so in such a confused way as to be practically impossible of interpretation. During the ten years that the subject of sclerosing treatment of varicose veins has been generally studied in this country a great many articles have been published, all but one or two claiming nearly perfect and permanent results for the treatment. Now, in a carefully considered study in another part of this issue*, it is seen that, no later than one and one-half years after treatment, there are many cases with new development and recanalization of veins. The analysis is of especial importance because it shows under what conditions the poor results are likely to arise and what changes in methods of treatment offer a good chance of obviating such results in the future. End-result studies are time consuming and difficult to make, and just what constitutes an end result in a given case may be open to varying interpretations, but many more such studies should be made in place of the constant succession of papers showing merely how well the author can perform a certain technical procedure, that itself may be as old as medicine.

*Page 357.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Troupin, A. S.* M.D. Tufts College Medical School 1918. Formerly Assistant Professor of Obstetrics, Tufts College Medical School. Visiting Surgeon for Gynecology and Obstetrics, Boston City Hospital. Visiting Obstetrician, Evangeline Booth Hospital. Member of Staff, Beth Israel Hospital. Assistant in Gynecology, Harvard University. Member, New England Obstetrical and Gynecological Society, Massachusetts Medical Society and American Medical Association. His subject is "Premature Separation of the Normally Implanted Placenta. Review of Eighty-Seven Cases." Page 351.

Faxon, Henry H. A.B., M.D. Harvard University Medical School 1925. Assistant in Surgery, Harvard Medical School. Assistant Surgeon to Out-Patients, Massachusetts General Hospital. His subject is "End Results in the Injection Treatment of Varicose Veins." Page 357. Address: 264 Beacon Street, Boston.

Rock, John. S.B., M.D. Harvard University Medical School 1918. F.A.C.S. Assistant in Obstetrics and in Gynecology, Harvard University Medical School. Obstetrician to Out-Patients, Boston Lying-in Hospital. Assistant Obstetrician, Massachusetts General Hospital. Surgeon to Out-Patients, Free Hospital for Women, Brookline. His subject is "Clinical Trials with the So-Called Female Sex Hormones." Page 362. Address: 224 Commonwealth Avenue, Boston.

*Deceased. Formerly at 311 Commonwealth Avenue, Boston.

RUSHMORE, STEPHEN. A.B., M.D. Johns Hopkins University Medical Department 1902. F.A.C.S. Secretary, Board of Registration in Medicine, Massachusetts. His subject is "House Bill 106." Page 369. Address: 520 Commonwealth Avenue, Boston.

TOWLE, HARVEY P. A.B., M.D. Harvard University Medical School 1892. Consultant in Dermatology, Massachusetts General Hospital. Address: 453 Marlboro Street, Boston. Associated with him is

GRUND, JACOB L. M.D. Harvard University Medical School 1921. Assistant Dermatologist, Department of Dermatology and Syphilology, Massachusetts Memorial Hospitals. Instructor in Dermatology and Syphilology, Boston University Medical School. Address: 483 Beacon Street, Boston. Their subject is "Progress in Dermatology." Page 374.

DR. WILLIAM PHILLIPS GRAVES

THE death of Dr. William P. Graves, which occurred on January 25, 1933, came as a great shock to the vast majority of his friends and patients and left a void in the community which cannot be filled and which time will only emphasize rather than obliterate. Only a few of his most intimate friends realized that his health had been failing for some time and if his life was to be prolonged this could only be brought to pass by, at least, a temporary curtailment of the various activities which to him constituted living. Whether he himself fully realized the actual danger, although he had been warned of it by his medical adviser, is a question, but in any case he preferred to die in harness, carrying on his life's work to the end, rather than to stop and to rust out gradually, as was otherwise inevitable, and even to his close friends no sign that any cloud was hanging over him was apparent.

William Phillips Graves was born at Andover, Mass., January 29, 1870, the son of William B. and Luranah H. (Copeland) Graves. He prepared for college at Phillips Andover Academy and graduated from Yale with the class of 1891, leaving behind him an enviable reputation both as a student and as an athlete. After leaving college he taught for a brief period at the Hill School, Pottstown, Pa., following which he entered the Harvard Medical School from which he graduated with the highest honors in 1899. During the next sixteen months he served as surgical "housepupil" at the Massachusetts General Hospital.

In 1900 following his graduation from the Hospital, he married Miss Alice M. Chase of Boston and went to Vienna where he spent several months in graduate study. On his return he entered practice in Boston and within a short time was appointed to the staff of the Free Hospital for Women, in Brookline, as pathologist. In 1907 he was appointed surgeon-in-chief to the Hospital, a position which he held with marked distinction until September, 1932, when he retired from the active control of the Hospital as surgeon emeritus.

In 1911 he was appointed to the Professorship of Gynecology at the Harvard Medical School and in 1927, when the William H. Baker Professorship of Gynecology was established, he became the holder of the chair, becoming professor emeritus at the beginning of the current year. His retirement from hospital work and teaching brought no respite from his activities as a practitioner, however, and he continued his arduous life until his health completely broke down some two weeks before his death.

As a teacher Dr. Graves' work was of a high degree of excellence and he was a prolific and convincing writer on gynecological subjects, illustrating his various writings with original drawings which showed a high degree of artistic skill. His two principal works were a textbook on gynecology, which ran through several editions and is everywhere accepted as a standard work, and a volume on "Female Sex Hormonology" published in 1931.

Dr. Graves received many honors at the hands of his associates. In 1931 he served as president of the American Gynecological Society and only a few weeks before his death was created an honorary fellow of the British College of Obstetricians and Gynecologists, being the first American to be so honored. In 1932 he received the honorary degree of Doctor of Science from Boston University and his students also registered their approval of him, both as a teacher and as a man, by electing him to honorary membership in the various undergraduate societies which stand for intellectual attainment.

It is to be deeply regretted that a life of such manifold accomplishments should be cut short at such an unnecessarily early age, but Dr. Graves was a man who lived too intensely in the present to spare himself even if he realized the cost of continued overwork, and always has been of such sturdy physique that it is doubtful if he fully appreciated the warnings of his medical adviser. Although his patients and colleagues appreciate part of what he accomplished in his lifework, the full evaluation of his career will only be evident when we see the continued influence of his work in the teaching of students by the men he trained and in the continued high standard of the work of the Hospital that he did so much to develop.

He is survived by his wife and three children, the eldest of whom is already on the staff of the Free Hospital for Women. His mother and a brother, Henry S. Graves, Professor of Forestry at Yale University, also survive.

MASSACHUSETTS LEGISLATIVE NOTES

The following bills, of interest to the medical profession, are before the Massachusetts Legislature:

H. 704 by Mr. Sheridan of Maynard, petition of Harvey G. Turner that the production, grading, sale and distribution of milk be regulated further. Agriculture and Public Health (sitting jointly).

H. 728 by Mr. Sawyer of Ware (by request), petition of the State Committee of the Socialist Party that there be established under state control an educational institution to be called the University of the Commonwealth of Massachusetts. Education. Hearing February 14, room 481 at 10:30 A.M.

Section 2. This university of the commonwealth of Massachusetts shall include, and have full control over, the state normal schools at Barnstable, Bridgewater, Fitchburg, Framingham, Lowell, North Adams, Salem, Westfield and Worcester; together with the Massachusetts school of art, the Massachusetts state college, the Massachusetts nautical school, the Bradford-Durfee textile school at Fall River, the Lowell textile school, the New Bedford textile school and the division of university extension.

Section 9. The board of regents is authorized and instructed to establish colleges of arts and sciences and such professional or other schools as they may deem advisable, in any one or more of the cities and towns wherein a state normal school, textile school or agricultural college is now located or in the cities of Boston, Springfield, or Pittsfield. They shall not prevent the university from conducting classes in any city or town of the commonwealth.

H. 748 by Mr. McCracken of Needham, petition of James W. Page and others providing for certain notices of hearings for commitment of persons alleged to be insane and that such persons be given right to examination by their own physicians. Judiciary (Joint). The hearing was held February 7.

H. 755 by Mr. Lane of Lawrence, petition of Thomas J. Lane relative to appointment and fees of physicians making examinations under the laws relating to compensation of employees injured in industrial plants. Labor and Industries. Hearing February 14, room 427 at 10:00 A.M.

H. 757 by Mr. Mahoney of Boston, petition of Edward E. Clark for an amendment of the law relative to the payment of compensation for specific injuries under the workmen's compensation law. Labor and Industries. Hearing February 16, room 427 at 10:00 A.M.

H. 782 by Mr. Nagle of Boston (by request), petition of Henry C. Kennington and others for legislation to establish the status as physicians of persons engaged in the practice of osteopathy prior to January 1, 1909. Public Health.

H. 783 by Mr. Patriquin of Mansfield, petition of the Citizens' Committee Opposing Compulsory Vaccination that the public be protected from impure vaccine and for a civil remedy for abuse thereof. Public Health. Hearing March 7, room 450 at 10:30 A.M.

H. 992 by Mr. Logan of Boston, petition of Robert E. Bigney that applicants for licenses to operate motor vehicles be examined as to physical and mental qualifications. Highways and Motor Vehicles. The hearing was held February 7.

H. 1171 report of the Department of Public Health relative to causes of offensive odors emanating from industrial processes in the cities of Everett and Chelsea. Public Health. Hearing February 21, room 450 at 10:30 A.M.

S. 287 to accompany the petition of Joseph C. White that adequate facilities and accommodations be provided at the Pondville State Hospital for persons suffering from cancer. Public Health. The hearing was held February 7.

H. 926 an act to regulate the practice of chiropractic. This provides for an additional function of the present Board of Registration in Medicine to ally itself with certain chiropractors for the purpose of registering chiropractors.

H. 1010 by Mr. Charles A. Kelley of Worcester, petition of Charles A. Kelley relative to compensation for death of employees injured in industrial accidents. Labor and Industries. Hearing scheduled for February 16, room 427 at 10:00 A.M.

H. 903 an act to define incapacity under the Workmen's Compensation Act. Labor and Industries. Hearing February 21, room 427 at 10:00 A.M.

H. 901 by Mr. Herter of Boston (by request), petition of John E. Daniels relative to notification and investigation precedent to discontinuance of compensation to employees injured in industrial accidents. Labor and Industries. Hearing February 21, room 427 at 10:00 A.M.

H. 902 by Mr. Herter of Boston (by request), petition of John E. Daniels that occupational diseases be defined and that employees afflicted with such diseases be compensated under the laws relating to industrial accidents. Labor and Industries. Hearing February 21, room 427 at 10:00 A.M.

H. 900 by Mr. Herter of Boston (by request), petition of John E. Daniels relative to compensation for employees partially incapacitated by injuries received in industrial accidents. Labor and Industries. Hearing February 21, room 427 at 10:00 A.M.

H. 898 by Mr. Herter of Boston (by request), petition of John E. Daniels that payment of compensation to employees totally incapacitated in industrial accidents be regulated further. Labor and Industries. Hearing February 21, room 427 at 10:00 A.M.

H. 897 by Mr. Herter of Boston (by request), petition of John E. Daniels relative to rights of injured employees to waive their rights to compensation. Labor and Industries. The hearing was held February 9.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

INSURANCE AGAINST DIPHTHERIA*

BY ROBERT T. PHILLIPS, M.D.

No form of insurance has yet been devised which offers more absolute protection at the least possible cost than that which the medical profession has made available for us against diphtheria. Its rapidly fatal course was well known to the ancients and for centuries mankind was hopeless against the ravages of this disease which has caused the death of countless babies and small children.

In recent years medical men have directed their attention more and more to the prevention of disease as well as to its cure, and diphtheria is a striking example of one serious affliction which can be absolutely prevented. We will consider in a few moments the method by which certain protection against this disease is possible for all of us. Let us bear in mind, as we go along, that the key to the whole problem of diphtheria is the immunization of our children to prevent their contracting the disease.

Until the method of treating diphtheria by the use of antitoxin was discovered, practically within our own lifetimes, the mortality was about forty per cent, that is, of every hundred cases, forty died. At the present time this percentage has dropped to between five and ten deaths per hundred cases and the only reason we continue to have deaths from the disease is because the antitoxin which cures it is not administered until the poison developed by the bacteria in the throat has so saturated the body that the largest doses of antitoxin cannot repair the damage which has been done.

Now what is this antitoxin which is so all-powerful in the treatment of diphtheria? Nothing else on the face of the earth can alter the course of the disease. Chiropractic, osteopathy, Christian Science, faith healing of all descriptions have never and can never change the progress of diphtheria once the germs which cause it have begun their nefarious work in the throat. Antitoxin is a substance developed in the blood to counterbalance the poison produced by the bacteria. Ordinarily the blood is unable to produce this substance rapidly enough to be of great use. By the injection into the body of the patient of antitoxin derived from the blood of horses who have been immunized against diphtheria, we merely provide the body immediately with large quantities of this poison-fighting substance and thus the individual is not handicapped for lack of the means to carry on the battle. This life-saving treatment for diphtheria is now available to you and your children everywhere and its cost is within the means of all.

Treatment at the earliest possible stage insures the best results. The initial symptoms may be very slight. The patient may complain of a little soreness of the throat or a croupy cough. The temperature is slightly elevated but the individual is often not ill enough to remain in bed. In the initial stages a greyish yellow membrane may appear on the throat or tonsils. Call your doctor promptly. He is trained to evaluate these early evidences of diphtheria and, in the light of what may follow, such insurance is of trifling cost.

Remember that this is a disease of childhood. Four out of five cases of diphtheria occur in children under ten, and four out of five deaths from diphtheria occur in children under the age of five. You have heard of the Schick test. This method of determining susceptibility against diphtheria was developed by Dr. Béla Schick in 1913, and first used on a large scale in the public schools of New York City. Its use is now widespread. This test shows that before the age of six months most babies are protected against diphtheria, but that fully ninety-five per cent of children are susceptible when they reach the age of one year. From that time on susceptibility slowly declines as natural immunity is acquired, until we find among adults but ten to twenty per cent positive Schick reactions.

Now what can we do to make sure our children will not contract this disease? There is only one answer and it is simple and definite. We will have all children between the ages of six months and six years immunized with an altered toxin, such as toxin-antitoxin mixture, or toxoid. A small quantity of this substance is injected under the skin once each week for three weeks. The blood by this means is acquainted with the poison produced by the diphtheria bacteria and thus prepared to conquer promptly any future invasion by these organisms.

Six months after these immunizing injections, the child should have the Schick test in order to prove that immunity has been established in each instance. A small per cent will be found to have a positive test at the end of this period, and for such children the injections should be repeated, as well as the Schick test after another six-month period, in order to make sure that the desired immunity has been developed.

It is probable that diphtheria will never be conquered by antitoxin treatment alone for two reasons. First, the frequent delay in making the diagnosis and instituting treatment and, secondly, the menace of diphtheria carriers. In some cases recovering from diphtheria the organisms persist in the nose and throat, and for a long time after the patient has become well he has the power to

*Station WBZ, January 17, 1933, 4:15 P.M.

infect others with the disease. Also it has been shown that even those who have not had the disease may be carriers. Unless we have been protected, insured, immunized against the disease, we can never be certain we are not in danger.

We should realize that diphtheria is not a disease that is localized in the throat but that serious complications are very possible. A dangerous sequel is involvement of the heart leading to sudden death from heart failure during convalescence. Paralysis of the soft palate, voice-box and eye muscles is not uncommon. In addition, bronchopneumonia, hemorrhage and even nephritis may develop.

There are two things to bear in mind with regard to diphtheria. First, immunization to insure against having the disease. This includes the Schick test proof of immunity after six months, and, secondly, prompt administration of antitoxin by your family doctor once the diagnosis has been suspected or established. Antitoxin cures, toxin-antitoxin prevents.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1932 AND SEVEN YEAR AVERAGE

MONTH ENDING FEBRUARY 4, 1933

Diseases	1933					1932			
	Week ending Jan. 14	Week ending Jan. 21	Week ending Jan. 28	Week ending Feb. 4	Average cases reported for week corresponding to Feb. 4 for past seven years	Week ending Jan. 16	Week ending Jan. 23	Week ending Jan. 30	Week ending Feb. 6
Cerebrospinal Men.	—	—	—	1	1	2	1	1	1
Chicken Pox	132	156	146	117	126	127	118	186	109
Conjunctivitis Inf.	—	—	—	—	3	2	—	—	—
Diphtheria	5	1	6	11	28	7	9	6	3
Encephalitis Epid.	—	—	—	1	—	—	2	—	—
German Measles	1	—	1	6	16	8	4	3	2
Influenza	471	249	270	210	126	6	7	3	6
Malaria	—	—	—	1	—	—	—	—	—
Measles	100	109	67	157	268	122	121	179	128
Mumps	43	53	56	57	51	117	77	78	75
Paratyphoid Fever	—	—	—	—	—	—	1	—	2
Pneumonia (Broncho)	69	98	76	95	53	59	40	43	22
Pneumonia (Lobar)	57	108	84	72	58	59	49	41	38
Poliomyelitis	—	—	—	—	—	—	1	—	2
Scarlet Fever	114	108	117	149	88	70	87	102	8
Septic Sore Throat	—	—	2	—	2	7	2	4	3
Smallpox	1	—	2	4	2	8	4	6	8
Tetanus	—	—	—	—	—	1	—	—	—
Trichinosis	—	—	—	—	—	—	—	—	1
Tuberculosis (Pul.)	24	24	29	24	23	31	34	18	3
Tuberculosis (O. F.)	—	2	1	—	2	4	6	4	2
Typhoid Fever	1	1	1	1	1	—	1	1	—
Undulant Fever	—	2	1	1	—	—	—	—	—
Whooping Cough	93	72	58	69	73	122	106	112	12
Gonorrhea	78	43	28	34	29	30	25	40	2
Syphilis	50	51	42	83	36	38	39	66	5

Remarks: No cases of Asiatic cholera, glanders, plague, or yellow fever during the past seven years.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR JANUARY, 1933

It is unusual to be able to report so many communicable diseases at a low prevalence as it is possible to do this month.

Diphtheria leads the list, showing a remarkable decrease, the number of cases reported being a little more than half of the number reported in January, 1932.

Measles is extremely low for this season of the year.

Tuberculosis of all forms continues the downward trend noted during the last few months.

There was only one case of anterior poliomyelitis reported, which makes the prevalence of this disease the lowest for January in the history of the State.

Typhoid fever is likewise well below normal.

Whooping cough, mumps and German measles swell the list of those diseases which are below normal.

Lobar pneumonia, on the other hand, has been more prevalent than usual, only two years in the past having seen a larger number of cases reported for January.

Scarlet fever is likewise somewhat high, but has fallen from the peak which it reached in the early months of 1932.

Chicken pox has been on the increase for two or three months, but has not gone so high as it has, at times, been reported in the past.

Influenza showed a small peak in January of this year.

Epidemic cerebrospinal meningitis has been reported about the number of times expected.

MONTHLY REPORT FOR JANUARY, 1933

Disease	Jan. 1933	Jan. 1932	Average*
Anterior Poliomyelitis	1	6	8
Chicken Pox	1715	1265	1575
Diphtheria	136	253	424
Dog Bite	296	287	294
Epidemic Cerebrospinal Meningitis	9	4	11
German Measles	27	59	86
Gonorrhea	465	680	538
Lobar Pneumonia	919	530	724
Measles	601	1602	2691
Mumps	750	1313	909
Scarlet Fever	1661	2021	1533
Syphilis	392	613	327
Tuberculosis Pulmonary	274	322	373
Tuberculosis Other Forms	32	30	50
Typhoid Fever	13	18	18
Whooping Cough	739	904	1069

*Average number of cases for January during the preceding five years.

RARE DISEASES

Anterior poliomyelitis was reported from Northampton, 1.

Dysentery was reported from Chelsea, 1.

Encephalitis lethargica was reported from Quincy, 1.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Chelsea, 1; Chicopee, 1; Leominster, 1; Templeton, 1; Tewksbury, 1; Weymouth, 1; total, 9.

Malaria was reported from Taunton, 1 (therapeutic); Westborough, 1; Total, 2.

Septic sore throat was reported from Amherst, 1; Boston, 6; Chatham, 1; Concord, 1; Lunenburg, 1; Springfield, 1; Total, 11.

Tetanus was reported from Lowell, 1; Malden, 1; Total, 2.

Trachoma was reported from Boston, 1; Fall River, 1; Lynn, 1; New Bedford, 1; Pittsfield, 1; Total, 5.

CORRESPONDENCE

A LETTER TO A PHYSICIAN RESPECTING RECOVERY FROM GONORRHEA

February 2, 1933.

Dear Doctor:

This will confirm our telephone conversation of today in the case of ——.

The patient was reported by the Out-Patient Department of the —— Hospital on January 4, 1933, for having prematurely discontinued treatment for gonorrhea. He is 22 years of age, and married.

The Board of Health was asked to return him to medical care and informed us under date of February 1, that he had been to "Dr. ——, who said he was cured." In the same mail, under date of February 1, we received a note from the patient enclosing a certificate signed by you to the effect that "This certifies that I examined (patient) at this date, finding him free from any venereal disease."

In my conversation with you, I was informed that your examination consisted only of clinical examination of the patient for evidence of discharge and that you gave him the certificate on the strength of your being unable to discover any discharge. You informed me that you did not examine the patient's prostate gland. I presume that you did not take a test of the patient's blood for evidence of syphilis.

Chronic gonorrhea in the male frequently assumes the form of a prostatic infection without symptomatology. It is impossible to declare a patient who has had gonorrhea free of his infection without examining the prostate not only as to the presence or the absence of the gonococcus but also as to the presence or absence of pus.

The clinic was, no doubt, treating this patient for his residual prostatitis. He is a married man and if he resumes sexual relationship with his wife on the basis of your declaration that he is free from infection, he may very well infect her if there is any residual gonorrheal prostatitis.

In view of the fact that your examination was by no means complete and because the man has not yet been discharged as cured by a clinic which is conversant with the actual condition of this man, we feel that we cannot accept your statement that he is cured.

You rationalized your issuance of the certificate by stating that you were a general practitioner and not an expert in the treatment of gonorrhea. We cannot agree that your lack of familiarity with this disease should give you the right to issue a statement to the effect that the patient is free from infection. Your certificate also appeared to establish the patient's freedom from in-

fection with syphilis, which is generally indicated in the term "venereal disease". While it is true that this man apparently does not have syphilis, unless you had examined him for that condition and had taken a blood test, you would be in no position to declare him free from that disease.

The issuance of certificates of freedom from gonorrhea or syphilis is a dangerous procedure. In many cases prostitutes and others are known to have used such certificates for years by changing the dates. Some states prohibit the issuance of such certificates by law.

Under separate cover, we are forwarding certain literature that we have distributed to the medical profession of this State concerning the management of gonorrhea and syphilis, which we trust you may find of value.

We trust that you will straighten this matter out with (patient) as we shall be obliged to ask the Board of Health to request that he return to medical care.

Yours truly,

N. A. Nelson, M.D., *Assistant Director*,
Division of Communicable Diseases.

APPREHENSION ABOUT THE FUTURE OF MEDICAL PRACTICE

5 Aldwin Road,
Roslindale, Mass.,
February 6, 1933.

Editor,
The *New England Journal of Medicine*,

I have been very much interested in the discussions, criticism, and commendations of the Report on the Costs of Medical Care. Like thousands of young physicians who have recently joined the profession, my rôle must of necessity be more or less passive—reading, listening, and waiting for the next move of the older physicians who really have our fate in their hands.

I have wondered whether this was a very opportune time for the Committee to release the Report, or whether it would not perhaps have been wiser to withhold it from both public and profession until the mental and economic slump improved a bit for all of us. It cannot be denied that the attitude one takes toward any issue is largely influenced by the contemporary circumstances and the general mental tone of the times. Because of the economic conditions today, many physicians would probably welcome some sort of socialized medicine in order to make a living. In other words, I believe the average physician to be more in the mood to yield to various schemes and plans which promise a surer income than he would be if conditions were better.

We younger men in the profession aren't having an easy time making both ends meet, but we have faith in America and the medical profession. The older generation has already been accused of perpetrating prohibition on us. I trust that the leaders in the profession who are to guide us through new forms of medical practice will make due allowance for the peculiar circumstances of the day, and not plunge us into something which will receive everlasting criticism from the rising generation of physicians when it is time for us to fall into our heritage.

Respectfully yours,

James L. Guardo, M.D.

THE DISTRIBUTION OF SCARLET FEVER STREPTOCOCCUS ANTITOXIN

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

February 10, 1933.

Editor,
The *New England Journal of Medicine*,

May I announce through your columns that the Department of Public Health is again distributing scarlet fever streptococcus antitoxin through the Antitoxin and Vaccine Laboratory. The supply available at present is not large, but it is probably adequate if orders are limited to the quantities needed for periods of two to three weeks.

Yours truly,

George H. Bigelow. M.D.,
Commissioner of Public Health.

RECENT DEATH

LITTLEFIELD—Samuel Horace Littlefield, M.D., of 43 Binney Street, Roxbury, died February 8, 1933, in his sixty-fourth year. Dr. Littlefield was born in Prospect, Maine, the son of Horace W. and Anna W. (Maddocks) Littlefield. He graduated from the Medical School of Harvard University in 1892 and joined the Massachusetts Medical Society in 1893. He is survived by his widow and one son, William Horace Littlefield.

OBITUARY

MEMORIAL ADDRESS*

By Thomas J. Scanlan, M.D.

With the closing of the year 1932 there departed from our little family at St. Elizabeth's Hospital all that was mortal of one, whose life and work were linked up with its history from its earliest conception to very recent years. I refer to our good friend, Sister Raphael. The passing of this ardent servant of God compels me to give acknowledgment to her many beautiful attributes, in order that her splendid example may live on as one of those worth-while inspiring traditions of St. Elizabeth's.

To those of us whose privilege it was to have served with her during some of the fifty years of the service which she rendered in the Obstetrical Division of our Hospital, her passing is a dis-

*Delivered at a meeting of St. Elizabeth's Hospital Staff, January 12, 1933.

tinct loss. To the nurses, whose privilege it was to have had their training in obstetrics carried out under her direction, and to the thousands of mothers, both young and old, who entered the portals of Sister Raphael's Department, the name of our beloved Sister will always remain a loving memory.

As a Religious, she exemplified in an unobtrusive manner the true meaning of such a calling. Her devotion to God, to her Order of Saint Francis, her sincerity of professional purpose, her humility, her kindness and love for her fellow creatures, be they of unquestionable goodness or not, were of the deepest concern.

As my thoughts turn backward over a good span of years, all of which were linked up with the activities of St. Elizabeth's Hospital, I recall with great satisfaction and encouragement her mental and physical equipment for the many exacting demands that were made upon them. She took up the work at a time when medical history was entering a new chapter in surgical obstetrics. It was the beginning of the hospital age, when the expectant mother would wend her way to the hospital for relief. It was a time when bacteriology was beginning to be a strong factor to deal with in matters of infection, or what was known at that time as childbed fever.

Sister Raphael entered upon her life's work at this period, and continued to labor until illness overtook her a few years back. Her entrance upon this work was signalized by a desire and determination to understand obstetrics and its related subjects, both theoretically and practically. The accomplishment of such a goal was one of her outstanding qualities, to which many consulting physicians and internes can testify.

I remember very well the temerity that transfixed me when I was ordered to duty in the Obstetrical Wards. My brothers, who had preceded me in the service, had so elevated the Sister and her accomplishments that I both feared and yet felt grateful for the opportunity that was in store for me. After our initial contacts were ironed out, I found that our good friend was all that she was painted, and an extra helping thrown in.

In her early professional period she labored in the old hospital on West Brookline Street in a department that was situated on the third floor, and its rooms were those of the dwelling-house type, poorly heated, poorly lighted and ventilated. The delivery room was made out of what had been the kitchen in this house, small in width and depth, with just room enough for two nurses, a doctor and the patient.

The work that was done here was large, to say the least, and the results were gratifying to the last word, all of which were accomplished through the efforts of our late Sister.

The advent of a new-born baby means nothing as to time of day or hours of labor. The call to duty recognizes no hour. The hands of the clock answer only to the time of birth. For forty-three years our beloved Sister responded with a freshness to every call, waited by night and day, and most likely many whole nights with little or no sleep to her credit. Every baby case she considered as a new problem, and that belief she urged upon her house doctors and nurses, in order that they might better understand the importance of this work.

The problems that confront the accoucheur are numerous and varied, calling at all times for cool deliberation and a proper understanding of the subject. Very often the seasoned obstetrician would look to our departed Sister in times of distress for encouragement and advice, because, in her, there reposed a confidence born of years of experience and of study, both of which fitted her to advise in the situation at hand.

Her knowledge was not entirely empiric, on the contrary it was something attained as the result of years of study and application. It was quite a common thing to see her in her spare moments, which were few, devoting them to the best writers in obstetrics and bacteriology, such as Edgar, Williams, Lust, Reynolds, Councilman and Wright, and Gray—while on her desk waiting to be read, would be found the latest monthly and weekly magazines which carried detached messages relating to obstetrics.

Hand in hand with these time- and labor-consuming activities, there were blended those noble attributes of love for God and man. Her experience in her religious life needs no elucidating from me, other than to say that she exemplified it to the highest degree. Her simplicity, her devotion to her religious and material duties, her sincerity, her words of encouragement to those in need, her regularity of life and of self-denial were outstanding features that marked her as a most worthy daughter of the Church. To those who are to follow in her footsteps, whether they be the Sisters, doctors, or nurses, let me urge upon you the value of the example that she set, and let me also urge you to strive to carry on at the point where she laid down her work.

In the passing of this noble soul from our midst, I would like to have recorded on the pages of the history of this institution this tribute, so it may be an expression of the esteem in which we held her and also serve as an incentive to those who are to follow. To the good Sisters and her family, I want to say in conclusion that she did her Creator's bidding to the fullest extent, and I now feel a just reward of eternal happiness is hers.

NOTICES

THE FIRST CONTRIBUTION FOR THE NEEDS OF A WIDOW AND HER SON

A check for $3.00 has been received to be forwarded to the Massachusetts Medical Benevolent

Association as a contribution for the needs of a widow and her son as set forth in the *Journal* of February 2, 1933, on pages 267 and 277 in the items "An Appeal For Aid."

The suggestion has been submitted that if each member of the Massachusetts Medical Society would give $1.00 the immediate needs of this family would be met.

CLINICS IN MEDICINE AT PETER BENT BRIGHAM HOSPITAL

On Thursdays at 3:30 P.M. in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard, and Physician-in-Chief, Peter Bent Brigham Hospital, will give a series of clinics which members of the medical profession are cordially invited to attend. The next clinic will be given on February 23.

Physicians and medical students are also invited to attend ward rounds of the Medical Staff of the Peter Bent Brigham Hospital held from 10-12 o'clock on Saturdays, as well as a clinical-pathological demonstration immediately following these rounds.

CORRECTION

In the report of the Boston City Hospital Staff Clinical meeting of December 28, it was stated on page 280, issue of February 2, that Dr. Green presented the following statistics for the Obstetric Service from December 1, 1931, to December 1, 1932: Admissions 3828; Deliveries 3439; Normal deliveries 746, etc. The correct number of normal deliveries should have been 2466.

AN UNWARRANTED INFERENCE

American Medical Association
535 North Dearborn Street
Chicago, Ill.

Council on Medical Education and Hospitals

(Sent to superintendents of hospitals registered by the American Medical Association and to the President or Executive Officer of Colleges of Arts and Sciences and Junior Colleges approved by the American Medical Association. February, 1933.)

There is being widely distributed an announcement of the Illinois College of Physicians and Surgeons, 20 North Ashland Boulevard, Chicago, which includes the following statement:

> "Courses offered and requirements for graduation are class 'A' requirements."

Inasmuch as the Council on Medical Education and Hospitals of the American Medical Association is the only body which has ever rated medical schools as class A, it is clearly implied that the above-named school conforms to the standards prescribed by this Council. Such an inference, however, is wholly unwarranted. The above institution is conducted by a group of chiropractors and does not even remotely approach the standards of a class A medical school.

You are apprized of these facts in order that you may not unwittingly employ as interns any of the graduates of this school.

Very truly yours,

WILLIAM D. CUTTER,
Secretary Council on Medical Education and Hospitals.

REMOVAL

MOSES AKIN, M.D., announces the removal of his office to 829 Empire Avenue, Far Rockaway, N. Y.

HARVARD UNIVERSITY

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS

The Faculty of Medicine of Harvard University offers a course of free public lectures on medical subjects, to be given at the Medical School, Longwood Avenue, Boston, on Sunday afternoons. The lectures will begin at four o'clock and the doors will be closed at five minutes past the hour. No tickets are required.

SUNDAY AFTERNOONS AT FOUR O'CLOCK

February 19—Dr. W. H. Robey: Let the Head Govern the Heart.

February 26—Dr. H. R. Viets: Nerve, Nerves, and Nervousness.

March 5—Dr. E. L. Oliver: The Care of the Skin and Scalp.

March 12—Dr. Shields Warren: Cancer and Radiation Therapy.

March 19—Dr. Randall Clifford: The Tuberculosis Problem Today.

March 26—Dr. W. G. Smillie: A Discussion of the Common Cold.

RADIO HEALTH MESSAGES

FEBRUARY-MARCH, 1933

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZ. Tuesdays, 4:15 P.M.

February
21 Why a Health Department?
28 Effects of Fatigue

March
7 Vacation Health
14 The Use and Abuse of Serums and Vaccines
21 Can We Prevent Diabetes?
28 Hobbies and Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 12:45 P.M.

Health Subjects of Public Interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 4:50 P.M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND ROENTGEN RAY SOCIETY

Dr. John D. Camp of the Section on Roentgenology, Mayo Clinic, addressed the New England Roentgen Ray Society at its meeting at the Boston Medical Library, Friday evening, December 16, on the subject of "Roentgenologic Findings Associated with Tumors in the Spinal Canal."

In the roentgenologic examination of patients suspected of having a tumor involving the spinal canal, roentgenograms made both from the anteroposterior and from the lateral aspects are necessary. These should be supplemented by stereoscopic and oblique views, localized at the level suspected clinically. When the thoracic portion of the spinal canal is involved, and an intrathoracic mass is present, additional roentgenograms of the thorax, or of the heart, and roentgenoscopy of the thorax may be required before the identity of the mass can be established.

In the interpretation of resultant shadows one is concerned chiefly with alteration in the structure of the vertebrae or adjoining ribs. In general, the changes observed in the vertebrae consist of erosion secondary to direct pressure or invasion by the tumor, destruction due to a benign or malignant tumor of bone, metastatic disease, and hyperostosis. These changes may occur singly or in combination, and may be either localized or widespread. The character of the changes, their situation, and their extent all assist in identifying the underlying lesion. Primary and metastatic diseases of the vertebrae exhibit the characteristics of the same diseases in other bones, except as they may be influenced by the contour of the vertebrae and the mechanics of posture and weight bearing.

Spinal neurofibromas, because of their benign and encapsulated nature, involve the bone only by direct pressure and consequent erosion, and the defect observed in roentgenograms coincides with the site of the tumor. The earliest demonstrable roentgenographic change accompanying this tumor is erosion and thinning of the medial border of the pedicle of the vertebra at the site of the tumor. This is best seen in an anteroposterior view. One or both pedicles may be involved depending on the size and site of the tumor. Later, erosion and thinning of the laminae can be observed, and changes in the pedicles of one or several vertebrae may be seen if the tumor remains within the spinal canal and enlarges by extending up or down. Changes in the contour of the bodies of the vertebrae are among the last signs to be recognized. When the tumor has extruded through the intervertebral foramen, the pedicles and laminae on the affected side of the vertebra are eroded, and may be completely destroyed. Enlargement of the intervertebral foramen will also be obvious. When a tumor involving the thoracic portion of the spinal canal increases further in size, erosion of the ribs, bulging of the surrounding soft tissues, and intrathoracic extension may be seen.

A spinal endothelioma produces roentgenologic changes similar to those accompanying a neurofibroma except that it does not extrude through the intervertebral foramen. Occasionally the calcified psammoma bodies which often accompany these tumors are dense enough to cast shadows in the roentgenogram.

Abnormalities are rarely observed roentgenographically in association with intramedullary tumors unless the tumor has produced expansion of the spinal cord sufficient to cause pressure and consequent erosion of the laminae, pedicles and bodies. Well-marked neurologic signs usually prevail long before changes of bone have occurred.

Ependymal-cell gliomas cause erosion; they expand the bone by direct pressure, and the margins of the eroded bone are sharp and well-defined. The tumor may be of considerable size, and may involve one or more vertebrae; the lumbosacral region is the most frequent site of these tumors.

Chordomas may produce massive erosions of the sacrum and complete destruction of the laminae and spinous processes. Because of the infiltrating character of these tumors the margins of involved bone are irregular and not well-defined. Roentgenographically the infiltrating character of chordomas will serve to distinguish them from ependymal-cell gliomas.

The dermoid tumors which arise in the region of the sacrum, as well as that group of antesacral tumors commonly referred to as Middledorf tumors, are capable of producing localized erosions in the body of the sacrum, but rarely invade and destroy the laminae and spinous processes.

Benign tumors of the vertebrae include osteomas, osteochondromas, giant-cell tumors and hemangiomas. Pure osteomas arising from vertebrae are rare. Osteochondromas, when arising from vertebrae have the same roentgenographic features that they have when they arise from other bones. The majority of these tumors have been found to arise from the various bony processes of the vertebrae rather than from the bodies. They may distort contiguous bony structures and cause erosion as the tumors increase in size. Giant-cell tumors have the same characteristics that they have in other bones. The lesions usually occur in the bodies and pedicles of the vertebrae, but

the laminae and bony processes may also be involved. This tumor may simulate myelosarcoma, metastatic hypernephroma, osteitis fibrosa and occasionally lesions of Paget's disease.

Hemangiomas of the vertebrae produce irregular absorption of trabeculae, and thickening of the remaining vertical trabeculae, with resulting parallel vertical striations in the body. The abnormal trabeculations may extend into the vertebral arches and laminae. One vertebra or more may be involved. Roentgenographically this tumor must be distinguished from changes occurring in Paget's disease, osteitis fibrosa, and osteoporosis.

Primary osteogenic sarcoma involving vertebrae has the same roentgenologic features that it has in other bones. Roentgenographically, the picture is one of dissolution and destruction of bone, with secondary involvement of the paravertebral soft tissues. The destructive changes in the vertebrae cannot be distinguished from the destructive changes in bone resulting from sarcoma arising from the intraspinal or paraspinal soft tissues.

The speaker continued by saying that the roentgenographic characteristics of metastatic malignant growths in the vertebrae are too well known to warrant detailed discussion. The most common lesions are metastatic carcinoma, metastatic hypernephroma, and lymphoblastoma.

Fibrochondromas, sometimes spoken of as "ecchondrosis," arise from the intravertebral disks and may result from trauma. Because of the cartilaginous nature of these tumors they are not visible in the roentgenogram. Occasionally they may be identified by the intraspinal use of radiopaque oil.

The proliferative changes of the laminae, spines, pedicles, and bodies, sometimes referred to as hypertrophic osteitis, may be limited to one or several vertebrae. These lesions vary in degree from localized hypertrophy of bone, with narrowing of the spinal canal, to massive fusion of several spinous processes, laminae and vertebrae, producing marked compression of the spinal cord. The symptoms produced by these lesions simulate those of intraspinal tumors, since the onset of motor and sensory disturbance is characterized by local pains and loss of function. Intraspinal extension of marginal vertebral hyperostosis, and narrowing of the intervertebral foramina by proliferative changes about destroyed lateral articulations, are best studied by stereoscopic roentgenograms taken both in the anteroposterior and lateral positions. Bony spurs developing after operative procedures on the vertebrae are also best detected in this manner.

When the original roentgenograms are negative or inconclusive and clinical localization is uncertain, it may be desirable to attempt localization of a suspected tumor by means of an intraspinal radiopaque oil. The oil may be introduced into the cisterna cerebello medullaris or into the lumbar portion of the spinal canal. Fundamentally the examination is concerned with the interpretation of filling defects in the contour of the shadow cast by the oil and with complete or partial arrest of the opaque medium. Intraspinal lesions that are large enough to deform the subarachnoid space will produce variations in contour, and theoretically, because of their different relations to the subarachnoid space, the lesions depicted can be identified as, intramedullary, subdural, and extradural. Practically, these distinctions cannot always be made although it is frequently possible to determine whether the lesion is ventral, dorsal, or lateral to the spinal cord. Although the shape of the filling defect will permit the diagnosis of tumor, the probable nature of the tumor cannot be identified from study with opaque oil alone. Complete arrest of progress of the oil may be due to any intraspinal lesion which obstructs the subarachnoid space, such as tumors, fracture dislocations, intraspinal tuberculous abscesses and so forth. Complete blockage is rare in inflammatory lesions, but because of inflammatory bands, the oil is usually held in small rounded or irregular pockets. These changes are usually seen in chronic adhesive arachnoiditis.

Although there are definite indications for the use of radiopaque oil, it occasionally produces mechanical and chemical meningitis and radiculitis, and these may exaggerate the symptoms of the root pain; thus it is wise to remove all the oil at operation if possible. Dr. Camp advises against the use of the oil if the neurologic examination or the original roentgenograms give sufficient diagnostic and localizing evidence.

DISCUSSION

Dr. William J. Mixter opened the discussion of the paper. He emphasized the fact that the neurologist should always attempt to tell the x-ray man "where to shoot". The operability of cord tumors is striking, and over fifty per cent are benign and usually curable. Dr. Mixter stated that lipiodol block may precede neurological signs and that the speaker perhaps slightly overemphasized the irritability of the oil. He believes that the use of lipiodol is indicated when, and only when, block is demonstrable by other means.

Dr. George W. Holmes next presented the x-ray films of a case of dermoid cyst of the spine. He also wished to make one addition to Dr. Camp's discussion. A neurofibroma in the cervical region may give pain down the arm, and therefore a thorough investigation of obscure arm pain should mean x-rays of the spine.

Dr. M. C. Sosman said that he had seen definite aseptic meningitis after lipiodol and that symptoms due presumably to consequent fibrosis and organization may come a year after its use. Dr. Sosman showed the chest films of two cases. In the first there was a large chest tumor posteriorly beside the spine which did not move during fluoroscopy on breathing or coughing. There was erosion of an intervertebral foramen and a

neurofibroma of the eighth intercostal nerve was diagnosed.

The second case was similar except that the tumor moved during respiration and coughing, and it was diagnosed as a primary lung tumor. In closing, Dr. Sosman wished to emphasize that abdominal symptoms may occur in cord disease and result in abdominal operations. The spine should always be thought of, and investigated in cases where the pain is exaggerated on coughing, straining or sneezing.

Dr. Camp closed the discussion by adding that scoliosis may be an important sign of cord tumor, and yet it may produce a pseudoerosion, simulating an actual tumor, where none exists. He also wished to emphasize the fact that when x-rays of the spine are being taken, it is essential that the patient be straight and absolutely flat on his back.

GREATER BOSTON MEDICAL SOCIETY

The Greater Boston Medical Society held a special meeting in the Boston Medical Library on the evening of January 18, at 8:15 P.M. Dr. William Dameshek presided, and introduced the speaker of the evening, Dr. Jonas S. Friedenwald of Baltimore. Dr. Friedenwald chose as his subject "The Changing Relations of Ophthalmology to Internal Medicine."

Dr. Friedenwald, in reviewing the records of his father's practice, has been interested in comparing the types of cases encountered in private practice today with those of an earlier period. The most striking results of this investigation are that ocular manifestations of syphilis, phlyctenular conjunctivitis, infections of the lacrymal tract and stenosis of the lacrymal duct, are less frequent since immigration has been restricted. Trachoma has been practically eliminated from private practice. Whereas only from three to four per cent of the cases of former years were referred to ophthalmologists, from thirty to forty per cent of diseases of the eye are now sent to specialists, showing an appreciation of the increasing importance of the association of general practitioners and those dealing with special diseases.

The speaker next told of some of the uses of the eye in experimental research. This organ has been used extensively in the study of tuberculosis and syphilis and has been found to be a good culture medium for Rickettsia bodies. On high cholesterol diets, rabbits show a lipoid arcus of the cornea similar to the arcus seniilis.

Dr. Friedenwald traced the development of ophthalmology as a specialty of medicine, and spoke of its significance in internal medicine. In the Middle Ages, the itinerant oculists were not recognized by the medical profession, and treated eye diseases inefficiently. Operations performed for cataract consisted of sticking a needle through the sclera, engaging the lens, and depressing it into the deep parts of the eye. Although this method is only 25 per cent effective, it is still practiced in India.

In the latter part of the sixteenth century, surgeons became interested in ocular surgery; in the early eighteenth century some limited their practice to ophthalmic surgery, and by the last part of the eighteenth century, the first operation for removal of the lens was performed. There were advantages and disadvantages in the association of ophthalmology and general surgery, which still hold today. In many hospitals and medical centers the department of ophthalmology is under the supervision of the surgical division. In London an ophthalmologist must pass an examination before the Royal College of Surgeons in order to become a member of a hospital staff.

Since the invention of the ophthalmoscope by Helmholz, in 1851, ophthalmology has drawn closer to internal medicine. In 1873 Gowers published a book dealing with this relationship and Osler emphasized that ophthalmoscopy should be a part of the routine physical examination.

Examination is valuable in distinguishing arteriosclerosis and arteriolarsclerosis. In 1924, McCallum published a monograph on these diseases and considered both to be the same process in different-sized vessels. Now arteriosclerosis is considered primarily a disease of the endothelium with fatty degeneration and formation of atheromatous areas; and arteriolarsclerosis is primarily a spasm of the smaller vessels with hyalin degeneration of the wall. In the eye we have an excellent opportunity to differentiate these processes. The vessels of the eye are essentially arterioles, although they are larger than other arterioles in the body, having no inner elastic membrane. In typical cases the two conditions give distinctly different ophthalmoscopic pictures.

The speaker concluded with a mention of the much discussed foci of infection as causes of eye disease. There are differences of opinion among physicians respecting the importance of this factor, but certainly some cases with disease of the uveal tract clear up rapidly following the removal of such foci.

The discussion was opened by Dr. Herrman Blumgart, who stated that he has recently seen a case of Menière's disease cleared up by removal of a focus of infection. Dr. Blumgart said that he had never seen a case of atrophic arthritis cured by a similar procedure. The following discussion centered largely about the importance of foci of infection, there being strong arguments both for and against their etiological significance.

HAMPDEN COUNTY MEDICAL SOCIETY

The regular winter meeting of the Hampden County Medical Society was held in the rooms of the Springfield Academy of Medicine on Tuesday, January 24, 1933, at 4 P.M.

Papers for the afternoon:

"Lung Cavities—Their Control a Necessity to

the Arrest of the Disease." Treatment by various methods. Lantern Slides. Dr. H. W. Van Allen.

"The Clinical Use of Diuretics." Dr. Herrman L. Blumgart, Assistant Professor of Medicine, Harvard Medical School.

Dr. George Henderson opened the discussion, and general discussion followed. Supper was served at six P.M.

THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

Annual Meeting

The annual meeting of the members of The American Society for the Control of Cancer will be held at the New York Academy of Medicine, 2 East 103rd Street, New York City, on Friday, March 3, 1933, at 8:00 P.M. All members are urged to attend and bring as many guests with them as they desire.

The program is as follows:

Presiding — G. H. Bigelow, M.D., President, American Society for the Control of Cancer.

1. "Recent Developments in the Work of the American Society for the Control of Cancer."—C. C. Little, Sc.D., Managing Director, American Society for the Control of Cancer.
2. "The Program and Work of the New York City Cancer Committee."—John C. A. Gerster, M.D., Chairman, New York City Cancer Committee.
3. "The Program and Work of the New York State Institute for the Study of Malignant Disease and the New York State Committee of the American Society for the Control of Cancer."—Burton T. Simpson, M.D., Director, New York State Institute for the Study of Malignant Disease, and Chairman of the New York State Committee of the American Society for the Control of Cancer.
4. Business Meeting.

AMERICAN PUBLIC HEALTH ASSOCIATION

Sixty-Second Annual Meeting

The American Public Health Association, foremost sanitary organization in the United States, announces its Sixty-Second Annual Meeting, to be held in Indianapolis, Indiana, October 9-12, 1933.

It was in Indianapolis in 1900 at the twenty-ninth convention of the American Public Health Association that Dr. Walter Reed read a paper entitled "The Etiology of Yellow Fever—A Preliminary Note," indicating that the mosquito serves as the intermediate host for the parasite of yellow fever. History was being made in the Old German House that day, yet it is reported by some of those present that the epochal report was received with only mild interest.

At the Sixty-Second Annual Meeting it is planned to honor the only living participant in the famous Yellow Fever Experiment, Dr. John R. Kissinger, at a special memorial session.

The scientific program will discuss every aspect of modern public health practice, from the viewpoint of the health officer, the laboratory worker, the epidemiologist, the child hygienist, the industrial hygienist, the nurse, the vital statistician, the health educator, the food and nutrition expert, the sanitary engineer. Distinguished scientific pronouncements may be expected from the outstanding personalities in the public health profession who will contribute to the program.

The American Public Health Association, 450 Seventh Avenue, New York City, will be glad to send more complete information about its Indianapolis Annual Meeting, to anyone interested.

NATIONAL CONFERENCE ON NOMENCLATURE OF DISEASE

On Monday, February 27, at 4:30 P.M. in the amphitheater of the Peter Bent Brigham Hospital, there will be held a meeting at which Dr. H. B. Logie, Executive Secretary of the National Conference on Nomenclature of Disease, will explain the new nomenclature which has been developed for national use in the United States. Members of the profession, administrative and record room staffs of New England hospitals and interested physicians are invited to attend. There will be opportunity for questions.

Henry A. Christian, M.D., *Vice President*,
National Conference on Nomenclature
of Disease.

BOSTON CITY HOSPITAL

Staff Clinical Meeting

Wednesday, March 1, 1933, at 8:15 P.M.
Thorndike Amphitheatre

1. Liver Disorder in Diabetes Mellitus. Dr. Richard P. Stetson.
2. Physical Signs in Pneumonia and Empyema. Dr. Francis W. Palfrey.
3. Acute Nicotine Poisoning. Dr. James M. Faulkner.
4. The Relative Value of Kidney Function Tests. Dr. Laurence B. Ellis.
5. Haverhill Fever. Dr. Edwin A. Locke.

Committee on Hospital Clinics.

BOSTON MEDICAL HISTORY CLUB

Sprague Hall, 8 The Fenway
Monday, February 20, at 8:15 P.M.

Ford Madox Ford and the Austrian and German Water Cures. Wm. P. Coues, M.D.

James Thacher; Progressive Pioneer Physician of Plymouth. Henry R. Viets, M.D.

History of Infant Feeding. Arthur B. Lyon, M.D.

James F. Ballard, *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, February 28, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

A Pathologically Verified Example of Pituitary Basophilism. By Dr. Harvey Cushing.

JOHN HOMANS, M.D., *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

February 16 — Massachusetts General Hospital. See page 346, issue of February 9.

February 16—New England Hospital for Women and Children. See page 346, issue of February 9.

February 17—New England Roentgen Ray Society. See page 346, issue of February 9.

February 17—Neisserian Medical Society of Massachusetts. See page 346, issue of February 9.

February 17 and 18—The New England Hospital Association. See notice on page 911, issue of November 17.

February 18—American Academy of Physical Therapy. See page 346, issue of February 9.

February 19—Harvard University. Free Public Lecture on Medical Subjects. See page 399.

February 20—The Annual Tufts Medical School Alumni Dinner. See page 346, issue of February 9.

February 20—Boston Medical History Club. See page 403.

February 21—South End Medical Club. See page 345, issue of February 9.

February 23—Clinics in Medicine at Peter Bent Brigham Hospital. See page 399.

February 27—National Conference on Nomenclature of Disease. See page 403.

February 28—Harvard Medical Society. See notice above.

March 1—Boston City Hospital Staff Clinical Meeting. See page 403.

March 3—The American Society for the Control of Cancer. See page 403.

March 15 - May 17—New England Physical Therapy Society. See notice on page 1010, issue of December 1.

April 1 and June 13—The American Board of Obstetrics and Gynecology. See page 233, issue of January 26.

April 5—New England Heart Association. See notice on page 1011, issue of December 1.

October 9-12—American Public Health Association. See page 403.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 3—Wednesday, Annual Meeting. Program to be announced.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Tentative Program

Wednesday, March 8, 1933—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Soma Weiss, Boston City Hospital. Subject: Arterial Hypertension.

Wednesday, April 5, 1933—Essex Sanatorium, Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Wilson G. Smillie, Professor of Public Health Administration, School of Public Health, Harvard University. Subject: Common Colds.

Thursday, May 4, 1933—Censors' Meeting, Salem Hospital. 3:30 P. M.

Tuesday, May 9, 1933—Annual Meeting. Salem Country Club, Forest Street, Peabody. Golf in afternoon; greens fee $2.00. Dinner at 7 P. M. Speaker: Dr. George Burgess Magrath. Subject to be announced later. Ladies invited.

R. E. STONE, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings will be held at the Weldon in Greenfield on the second Tuesday of March and May.

CHARLES MOLINE, M.D., Secretary.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The program of the Middlesex East District Medical Society is as follows:

March 15 at Melrose.

May, at the Meadowbrook Club, Reading.

ALLAN R. CUNNINGHAM, M.D., Secretary.

NORFOLK DISTRICT MEDICAL SOCIETY

February 28, 1933—See page 345, issue of February 9.

March 28, 1933—Time, place and subject to be announced. Speaker will be Dr. J. P. O'Hare.

May—Annual Meeting. Time, place and subject to be announced.

FRANK S. CRUICKSHANK, M.D., Secretary.
1695 Beacon Street, Brookline.

SUFFOLK DISTRICT MEDICAL SOCIETY

Wednesdays at 8:15 P. M.

March 29, 1933—Clinical Program, Massachusetts General Hospital.

April 26, 1933—Annual Meeting. Election of Officers. Scientific Program—Titles and speakers to be announced later.

The Medical Profession is cordially invited to attend these meetings.

WILLIAM H. ROBEY, M.D., President,
LELAND S. McKITTRICK, M.D., Secretary.

WORCESTER DISTRICT MEDICAL SOCIETY

Wednesday, March 8—Dinner and scientific program at the Memorial Hospital, Worcester. Program to be announced later.

Wednesday, April 12—Dinner and scientific meeting at the Rutland State Hospital. Scientific program to be announced later.

Wednesday, May 10—The Annual Meeting. Place and program to be announced later.

ERWIN C. MILLER, M.D., Secretary.

BOOK REVIEWS

Accidents, Neuroses and Compensation. By JAMES H. HUDDLESON. Williams & Wilkins Co. 1932. Price $4.00.

Although this is a volume small of size, it so concisely presents a subject which is complex and of such ever-increasing importance that a review of its contents should be sufficiently detailed to bring it to the attention of all who are dealing with industrial and veterans' compensation cases (general practitioners, internists, and surgeons not on full time with industrial corporations or insurance companies, medical directors of carrier companies, directors of industrial accident boards and impartial examiners associated with these boards, and those concerned with the enactment and administration of laws governing workmen's compensation and veterans' disability).

It is a volume of 216 pages with a bibliography of 441 references and a double column index of 22 pages.

Doctor Huddleson is Associate in Neurology at Columbia University and attending Neurologist at the Neurological Institute in New York.

Doctor J. Ramsey Hunt, Professor of Neurology at Columbia, in a foreword, states that the institution of industrial insurance and workmen's compensation laws and the World War have not only developed our knowledge of neuroses but have increased their number. Doctor Huddleson's presentation is based upon his wide experience and upon a masterful analysis of the literature. He opens his preface, "Nervous and mental symptoms in injured workingmen have long caused conflicting opinions and exhausted the patience of industrial surgeons, insurance carriers, and State compensation boards. Every year more classes of workmen and more types of injury

are made compensable by statute. General practitioners, internists and surgeons are all seeing more of these cases since public opinion is demanding that the injured man have free choice of his physician instead of being limited to his employer's choice. . . .

"Not inevitably but with increasing frequency after injuries involving indemnities, comes the host of 'traumatic neuroses', hysteria, neurosthenia, mental depression, paranoid litigiousness, all the mental twists and inefficiencies that have been or can be charged to a physical injury. . . .

"The book is planned to show the surgeon or the psychopathologist, in or out of industry, what these neuroses mean and how to circumvent them — if already established, the available avenues of approach and the legal methods of attack. . . ."

The subject is considered under these Chapter headings: I. Introduction, II. Historical Synopsis, III. Etiologies, IV. Classification and Symptomatology, V. Structural Pathology, VI. Post-traumatic Psychoses, Psychopathies and Malingering, VII. Specificity between Situation and Syndrome, VIII. Evolution, Duration, and Prognosis, IX. Differential Diagnosis, X. Treatment, XI. Compensation, XII. Prophylaxis.

The Introduction is a discussion of many concepts of the body-mind relationship.

Under Etiologies the author with terseness reviews a host of "mechanisms operating in the evolution of traumatic neuroses", — age (thymic subinvolution), physical stigmata, mental deficiencies, syphilis, concussions or other neural injuries, intoxications, psychoneuroses, maladjustments, glandular dysfunctions, cerebrovascular lesions, personality defects, preëxisting anxieties, earlier attacks of hysteria, degrees of intelligence, fear, terror, suggestion. "Only in concussion cases does the neurosis' severity tend to vary directly with the precipitating trauma. In others, psychogenesis so far outweighs somatogenesis that neurosis may vary almost inversely with trauma." . . . "Social sanctions increasingly attach responsibility for injury, monetary separation, and recovery of health, to an individual or group other than the injured. With the growth of this tendency goes an enhanced incidence of traumatic neuroses, swelling demands for compensation, and more justifiable suspicions of exaggeration or malingering."

The author considers a number of classifications. The most satisfactory separates primarily the concussed from the non-concussed cases and then subdivides either or both these groups. He then discusses prominent symptoms referable to many organs, regions and systems, cutaneous dysesthesias, disorders of special senses, mutism, aphonia, facial tics, blepharospasm, spasmotic torticollis, vertigo, headache, plegias, convulsions, effort syndrome, genito-urinary, gastro-intestinal, etc.

"In general what principal type of neurosis, if any, is to follow a given trauma will depend first upon the personality of the patient (his make-up and experience), second upon the trauma's setting (its suddenness, frightfulness, and compensability), and third upon the physical form of the trauma with its structural effects (as concussion)."

Although the first six chapters are of general interest to the practitioner, internist and surgeon who treat industrial cases, they are of especial interest to the neuropsychiatrist. The last six chapters are of special interest to the former group.

The chapter on Differential Diagnosis is of great practical value. Here are considered hysteria in its many manifestations, malingering, exaggeration, occupational neuroses, neurosyphilis, hematomyelia, epidemic encephalitis, sacro-iliac strain, causalgia, cervical rib, hyperthyroidism, etc. The chapter is replete with methods of examination and special tests. "There is no one test for the conclusive separating of simulation from hysteria. Numerous data from the total behavior are to be evaluated."

Although years may elapse between an accident and the appearance of a neurosis, the author believes that a limit of about two years is reasonable from a legal viewpoint. He adds that "our own argument to the effect that the monetary aspects of traumatic neurosis ought to be settled with maximal promptness, leads us to suggest limiting the time after injury to six months or even less, during which claims for compensation, etc., on account of resultant neurosis might be made."

The therapeutics of traumatic neuroses is prompt pecuniary settlement and the treatment of any physical complications involved in the trauma. The author considers three situations: first, when a company carries its own risk; secondly, when payment of compensation and providing of medical care are handled by an insurance company carrying the industrial company's risk; thirdly, when the insurer pays indemnity to claimant and fees to a doctor chosen by the claimant. The author stresses the necessity of psychical as well as physical first-aid at the time of the accident. When a traumatic neurosis has developed, short hospitalization in a special ward, with few visitors, and intensive psychotherapy is advocated. Huddleson subscribes to Moorhead's routine, "Light work, different work for a time, then regular work at the same job." He notes the hindrance to placement in a new type of work found in the attitude of certain labor unions. Machines that move the limb without any volition on the patient's part, most orthopedic surgery, and long-continued diathermy are denounced.

Huddleson favors the promptest possible lump sum award which is final, or denial of award, by an authority from which there is no appeal. "Actual verdicts in personal injury suits are too tardy in time and too liberal in amount."

Under Prophylaxis are considered medical examination of prospective employees, constant checks on quality, discipline and waste records of employees, improvement of working conditions and supplying interests to workingmen, minimizing noise, return to employment pending complete recovery.

Treatment of Syphilis. By JAY SCHAMBERG, M.D., and CARROLL S. WRIGHT, M.D. D. Appleton and Company, New York. 1932. 658 pages. Price $8.00.

A book on the treatment of syphilis from these authorities is most welcome to American physicians. It covers completely, and in many phases exhaustively, the whole range of therapy in syphilis. Not only is the disease as a whole covered in considerable detail, but the pathological effects on various organs, as well as the possible complications appearing during therapy. The volume contains both the opinions of the authors and abstracts of a vast number of articles which have appeared on the subject of syphilis therapy, together with comments by the authors on these papers.

The book makes it easy to visualize the immense amount of chronic illness caused by the spirocheta pallida, often not recognized or adequately treated by physicians in general. It should stimulate increased interest in such cases by providing an adequate authoritative reference book of detailed treatment.

The authors emphasize the need for the individual treatment of syphilis. Standards of treatment are provided, but at every turn they plead for the consideration of the individual—the need for determination of the stage of the disease, and careful examination to ascertain the organ or organs affected, as well as the general condition of the individual, in order to treat adequately and safely.

The indications and contraindications of various drugs, the possible effects produced, the technic of administration, statistics of results of various methods, etc., are given in great detail. It is a very excellent book on the subject.

Clinical Endocrinology of the Female. By CHARLES MAZER, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Gynecologist to Mt. Sinai and Northern Liberties Hospitals, Philadelphia; and LEOPOLD GOLDSTEIN, M.D., Demonstrator of Obstetrics, Jefferson Medical College; Assistant Gynecologist to Mt. Sinai Hospital; Formerly Fellow in Gynecologic Research, University of Pennsylvania. 518 pages with 117 illustrations. Philadelphia and London: W. B. Saunders Company, 1932. Cloth, $6.00.

The book gives a comprehensive summary of the research work which has appeared on this subject in recent years, together with the generally accepted theories which are based upon this work. The subject is a vast and complex one and the great amount of work which has been done upon it does not add to the simplicity of the task. This task the authors have accomplished in large measure though their work suffers somewhat in authority from the fact that it necessarily reports many conflicting results and views.

From the practical standpoint of diagnosis and treatment the book is a great boon both to the specialist and the practitioner. It is detailed enough for the former and yet simple enough to be thoroughly understandable. In the realm of treatment the book is particularly practical though it is of course in this realm that most remains still to be accomplished. It is altogether a readable, valuable work and well worth the money.

The plan of the book is first to give a summary of the various glands and their hormones which are of importance in the physiology of the female. There are chapters on the Ovary, Pituitary Gland, Thyroid Gland, the Adrenal and others. These chapters cover the subject largely from a scientific point of view.

The second half of the book has chapters covering Puberty, Menstrual Disorders, Functional Sterility, Pregnancy, Lactation and the Menopause. These chapters are more clinical in their nature and give the application of the scientific work to the specific problems involved.

We know of no book which is at all comparable in scope or practical detail to this.

Nursing in Nervous Diseases. By JAMES W. MCCONNELL, M.D. Phila.: F. A. Davis Company, 1932. 153 pages. Price, $1.50.

This is a valuable little treatise on a subject not often considered by the average textbook. There have been many volumes written on the nursing of mental patients but few on the care of patients with organic nervous disease, many of whom are bedridden. It is a welcome addition to our literature to have this carefully written but simple book, which can be well recommended.

Fungous Diseases. (A Clinico-Mycological Text.) By HARRY P. JACOBSON, M.D. (With introductions by Jay Frank Schamberg, M.D., and Howard Morrow, M.D.) Charles C. Thomas, Springfield, Illinois, and Baltimore, Maryland. 1932. 283 pages. Price $5.50.

As this is the first work in English to attempt the classification and description of the various fungi it is most welcome.

For the medical student, the beginner in mycology and the general practitioner it presents a working basis for the diagnosis of fungous disease from extemporaneous preparations, and in cultures, the isolation and identification of the organisms. It gives in considerable detail the selection of the material for examination, its preparation, and the appearance of the sought-for fungus.

The chapter on Monilias is somewhat confusing from the standpoint of classification. It is hoped that the identification by serological methods recently evolved will help to clarify this situation.

Other local and systemic infections such as blastomycosis and actinomycosis are clearly and concisely discussed in the following chapters. The author has repeatedly stressed the point of "the soil being rendered susceptible to the invading parasite because of a break at some point in the immunity chain" and of the necessity of coöperation between the dermatologist and the internist. The illustrations and bibliography are excellent.